123946

FINAL
RECORD OF DECISION

BUILDING 2612 SPILL SITE SS-041
(FORMERLY SITE SD-041)
SOIL AND SEDIMENT OPERABLE UNIT

FORMER PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

UNITED STATES DEPARTMENT OF THE AIR FORCE
AIR FORCE REAL PROPERTY AGENCY

Prepared by:

FPM REMEDIATIONS, INC.

SEPTEMBER 2012

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
Air Force	United States Air Force
AFRPA	Air Force Real Property Agency
ARARs	Applicable and/or Relevant and Appropriate Requirements
BCT	BRAC Cleanup Team
BGS	below ground surface
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminant of Concern
DCE	Dichloroethene
DERP	Defense Environment Restoration Program
EBS	Environmental Baseline Survey
ERA	Ecological Risk Assessment
FOSET	Finding of Suitability for Early Transfer
FS	Feasibility Study
FT-002	Fire Training Area
HRA	Health Risk Assessment
HQ	Hazard Quotient
IA	Industrial Area
IRIS	Integrated Risk Information System
ICBM	Intercontinental Ballistic Missile
IRP	Installation Restoration Program
kg	Kilogram
L	Liter
LOX	Liquid Oxygen
LUC/ICs	Land use Controls/Institutional Controls
mg	Milligram
µg	Microgram
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NYCRR	Title 6 of the New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance

OU	operable unit
PAH	Polycyclic Aromatic Hydrocarbon
PARC	Plattsburgh Airbase Redevelopment Corporation
PCB	Polychlorinated Biphenyl
RAB	Restoration Advisory Board
RAO	Remedial Action Objective
RBSC	Risk-Based Screening Concentrations
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendment and Reauthorization Act
SCOs	Soil Cleanup Objectives
SEBS	Supplemental Evaluation to the EBS
SS-041	Building 2612 investigation area (formerly SD-041)
SVOC	Semi-Volatile Organic Compound
TAGM	Technical Administrative Guidance Memorandum
TCE	Trichloroethene
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

DECISION SUMMARY

DECLARATION FOR THE RECORD OF DECISION

Site Name and Location

Former Plattsburgh Air Force Base

Building 2612 (SS-041)

Plattsburgh, Clinton County, New York

EPA ID # NY4571924774

This Record of Decision (ROD) presents the selected remedial alternative for the Building 2612 Site (SS-041) at the Plattsburgh Air Force Base (AFB) in Plattsburgh, New York. It has been developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for this site, a copy of which is available on-line at https://afrpaar.lackland.af.mil/ar/docsearch.aspx.

The remedy has been selected by the United States Air Force (Air Force) in conjunction with the United States Environmental Protection Agency (USEPA) and with the concurrence of the New York State Department of Environmental Conservation (NYSDEC), on behalf of New York State, pursuant to the Federal Facility Agreement among the parties under Section 120 of CERCLA, dated July 10, 1991. A copy of the NYSDEC concurrence letter is included as Appendix C of this ROD.

Assessment of the Site

Building 2612 is located in the central-eastern portion of the former Plattsburgh AFB on the east side of Arizona Avenue approximately 600 feet north of the intersection of Arizona and Idaho Avenues. Site SS-041 consists of Building 2612, the adjacent areas including the wetlands to the south, and the area between Buildings 2612 and 2616. Building 2612 was used in the early 1960's in support of the Atlas Intercontinental Ballistic Missile (ICBM) program. Thereafter, from 1970 until Base closure in 1995, the building was used as an unheated base equipment and supply warehouse. Its use as an unheated warehouse continues under its current tenant. In July 2009, ownership of the parcel containing Site SS-041 was transferred from the Air Force to the Plattsburgh Airbase Redevelopment Corporation (PARC).

During the course of investigating this site, the Air Force has cleaned, and sealed in place, or removed all of the equipment and piping believed to be potential sources and/or pathways for contaminant migration from Building 2612. In addition, contaminated soils and a portion of the contaminated wetland sediments believed to pose a potential threat to human health or the environment were excavated and removed during the course of investigating the site.

The wetland located south of Building 2612 contains sediments with concentrations of cadmium and chromium that present an unacceptable potential ecological risk to terrestrial receptors (land dwelling animals). The metals contamination appears to have originated at a storm sewer discharge point in the wetland, and the contamination follows depression contours within the low-lying wetland area. Floor drains and sink drains from the building discharged into this storm sewer. Due to the low drainage gradient and plant cover, contamination did not travel far from the discharge point.

Surface water is not considered a media of concern for Site SS-041 because there is no consistent, long-term standing surface water at the site. There is also no significant threat to human health posed by contaminants remaining in soil and sediment at the site. Groundwater contamination at Site SS-041, including potential soil vapor intrusion into buildings, is being addressed by remedial actions that are part of the Fire Training Area/Industrial Area (FT-002/IA) Groundwater Operable Unit (OU) and, therefore, is not addressed herein. Land use controls/institutional controls (LUC/ICs) related to the groundwater associated with this site are also addressed as part of the FT-002/IA Groundwater OU.

This ROD selects a remedy to address the sediment contamination in the wetland at the site. The site-specific remedial action objective (RAO) for Site SS-041 is intended to reduce cadmium and chromium concentrations in the wetland sediments to the remediation goals defined in this section. The remediation goals are concentrations that, if achieved, would result in conditions that do not pose a potentially significant threat to ecological receptors and are also considered protective of human health for residential use. They are chemical-specific targets for remediation that are consistent with the RAO.

Description of the Remedy

Site SS-041 is one of a number of sites administered under the former Plattsburgh AFB Installation Restoration Program (IRP). RODs have been signed for 17 operable units at the base and additional RODs are planned for other IRP sites.

The selected remedy for Site SS-041 includes the removal of sediments in the wetland south of Building 2612 that contain cadmium and chromium at concentrations higher than the remediation goals listed in the table below and disposal of the sediment off-site.

REMEDIATION GOALS

COMPOUND	MAXIMUM ALLOWABLE CONCENTRATION (mg/kg) FOR ECOLOGICAL RECEPTORS	6 NYCRR PART 375 RESIDENTIAL USE SOIL CLEANUP OBJECTIVES
Cadmium	2.5	2.5
Chromium (total)	150	NA
Hexavalent Chromium	NA	22
Trivalent Chromium	NA	36

Notes:
NA = not applicable
mg/kg = milligram/kilogram

The selected remedy for remediating Site SS-041 includes the following elements:

- Clearing and grubbing of the area to be excavated;
- Supplemental delineation of sediment [approximately 40,000 square feet to a depth of two to three feet] to determine the presence or absence of cadmium or chromium above remediation goals listed above. The remediation goals were derived from *Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375* (NYSDEC 2006) Residential Use Soil Cleanup Objectives (SCOs);
- Removal of sediment from the wetland [approximately 3,400 square feet to an estimated depth of two to three feet (250 cubic yards)] until remediation goals are met;
- Confirmatory soil sampling;
- Disposing of the excavated sediments at a permitted landfill;
- Backfilling the excavation with clean material; and
- Seeding the disturbed area.

This remedy addresses the principal threats by removing the contaminants from the wetland and placing them in a controlled landfill, thereby removing the threat of exposure for the potentially impacted terrestrial species and potential residential site users.

Statutory Determination

The selected remedy for remediation at Site SS-041 is protective of human health and the environment and complies with Federal and State applicable and/or relevant and appropriate requirements (ARARs). The selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy; however, because contaminated sediments will be excavated and disposed of at a secure and engineered landfill, the toxicity, mobility, and volume of contaminants are reduced at the site. The remedy will result in the reduction of hazardous substances, pollutants, or contamination on-site to levels that allow for residential use at the site.

ROD Data Certification Checklist

The following information is included in this ROD. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern and their respective concentrations (Section 5.0)
- Baseline risk represented by the chemicals of concern (Section 7.0)
- Cleanup levels established for chemicals of concern and the basis for these levels (Table 6)
- How source materials constituting principal threats are addressed (Section 4.0)
- Current and reasonably anticipated future land use assumptions, and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD (Section 6.0)
- Potential land and groundwater use that will be available at the site as a result of the selected remedy (Section 6.0)
- Estimated annual operation and maintenance (O&M) costs (Section 9.0)
- Key factors that led to selecting the remedy (Sections 10.0, 12.0, and 13.0)

Robert M. Moore 9/26/2012

ROBERT MOORE Date
Director, Air Force Real Property Agency

Walter Mugdan 9/27/2012

WALTER MUGDAN Date
Director, Emergency and Remedial Response Division
United States Environmental Protection Agency, Region 2

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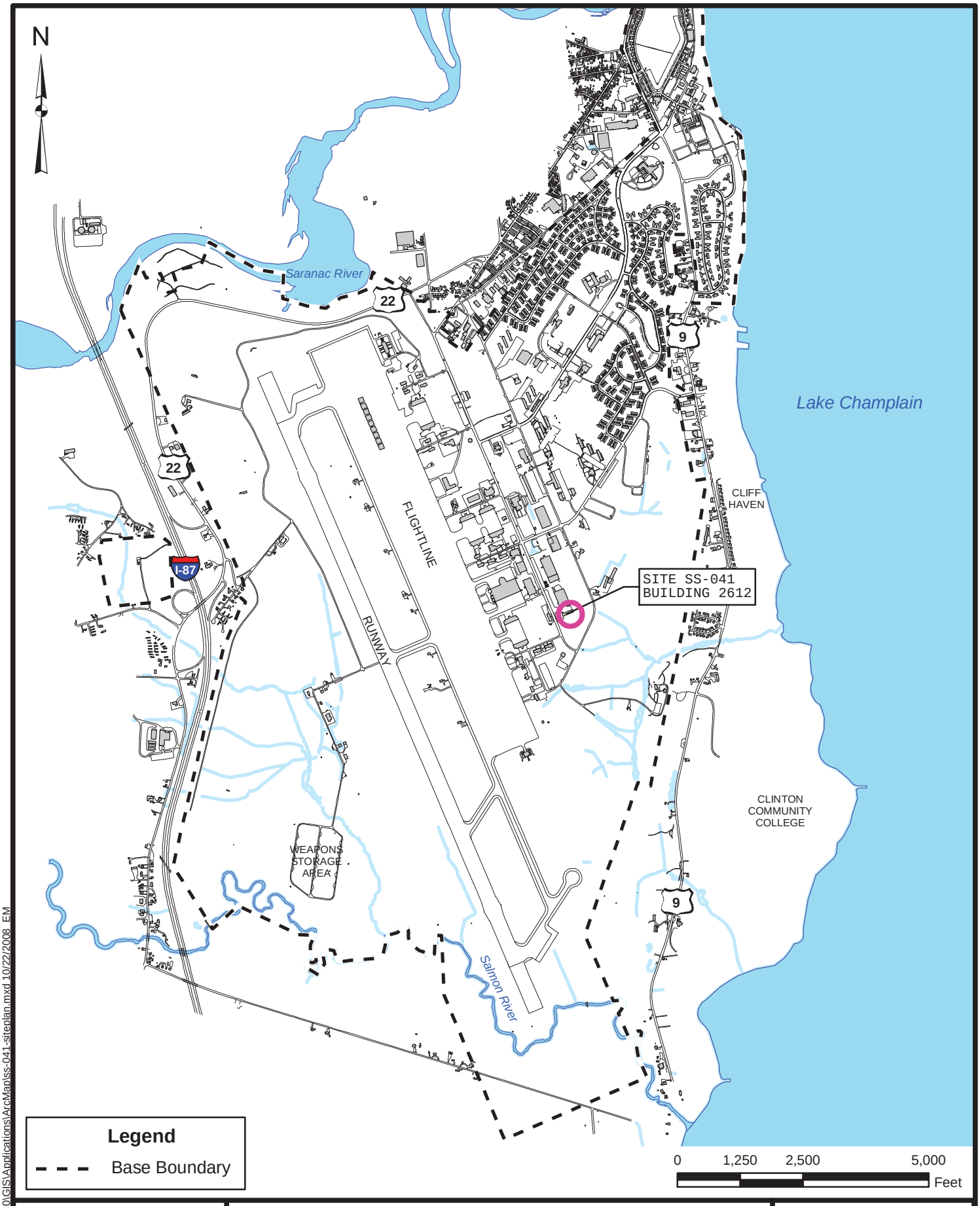
1.0 SITE NAME, LOCATION, AND DESCRIPTION

Plattsburgh AFB, located in Clinton County in northeastern New York State, is bordered on the north by the City of Plattsburgh, the south by the Salmon River, the west by Interstate 87, and the east by Lake Champlain. The base is approximately 26 miles south of the Canadian border and 167 miles north of Albany (see Figure 1).

Plattsburgh AFB was closed on September 30, 1995 in the third round of base closures mandated under the Defense Base Closure and Realignment Act of 1993. Its reuse is being administered by PARC, which is responsible for maintaining base property, marketing and controlling base reuse, leasing and managing property, and developing base facilities, as necessary, to promote advantageous reuse. According to land use plans (PARC 1995), the planned reuse of Site SS-041 is industrial and commercial. The planned reuse surrounding the site includes recreational to the east/southeast and commercial/industrial to the west/northwest (Tetra Tech 1995).

As part of its IRP and the Base Realignment and Closure (BRAC) Program, the Air Force has initiated activities to identify, evaluate, and restore identified hazardous material disposal and spill areas. The IRP at Plattsburgh AFB is being implemented according to a Federal Facilities Agreement (Docket No.: II-CERCLA-FFA-10201) signed by the Air Force, USEPA, and NYSDEC on July 10, 1991. Plattsburgh AFB was placed on the National Priorities List on November 21, 1989. The Air Force is funding cleanup.

Site SS-041 is located in the central-eastern portion of Plattsburgh AFB on the east side of Arizona Avenue approximately 600 feet north of the intersection of Arizona and Idaho Avenues (see Figures 2 and 3). The site consists of Building 2612, the adjacent areas including the wetland to the south, and the area between Building 2612 and Building 2616. Between 1961 and 1963, 12 Atlas ICBM sites were constructed by the Air Force within a 50-mile radius of Plattsburgh AFB (Broyhill 2011). In October 1961, the 556th Strategic Missile Squadron was assigned to Plattsburgh AFB; the squadron became fully operational in December 1962.



FORMER PLATTSBURGH AFB, NY
SS-041 BUILDING 2612
SITE LOCATION

FIGURE 1

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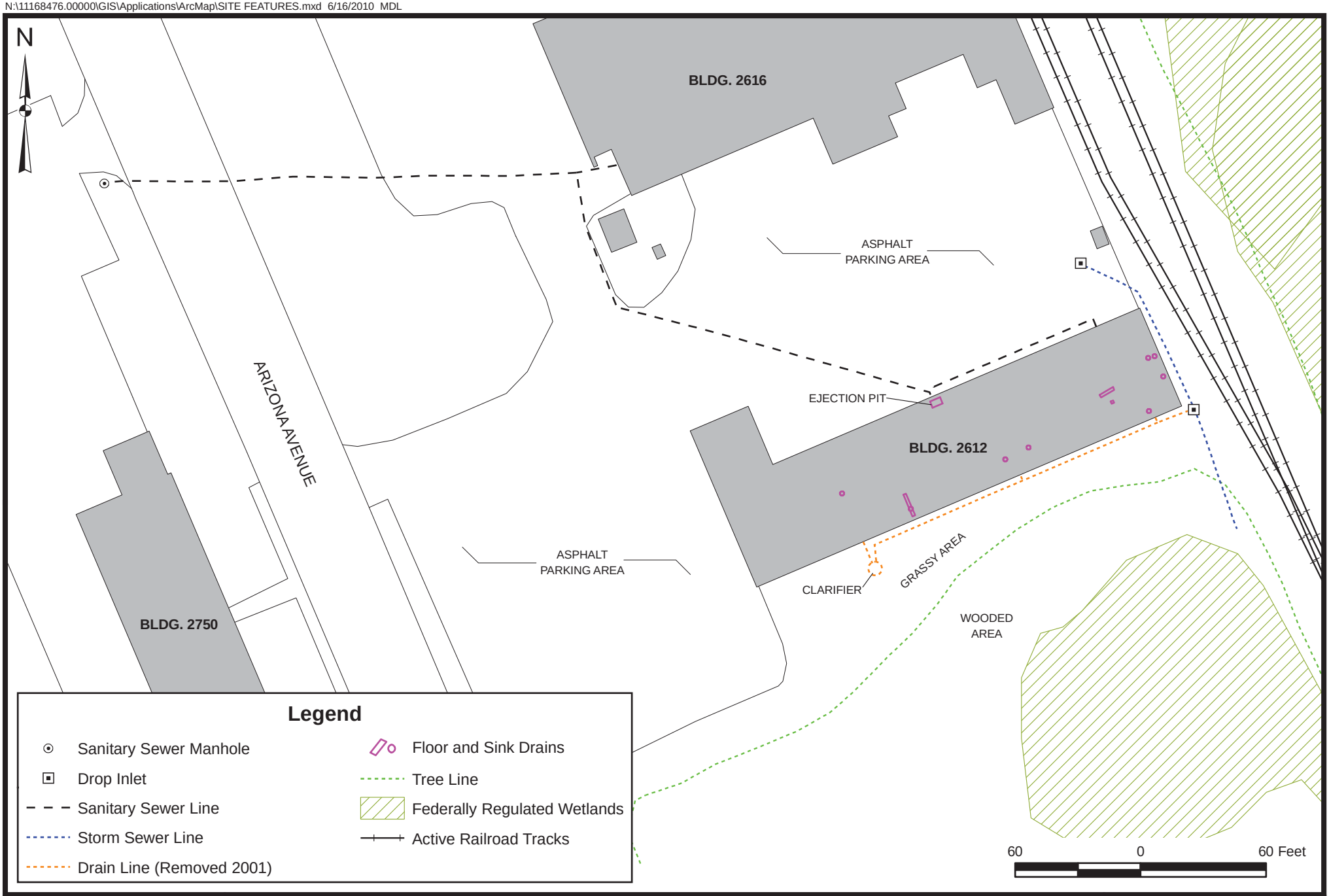

PLATTSBURGH AFB - BUILDING 2612 - SITE SS-041
SITE FEATURES

FIGURE 2

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SOURCE: NYS GIS Clearinghouse Orthoimagery, Clinton County, 2008

BUILDING 2612 - SITE SS-041
SURFACE FEATURES

FIGURE 3

Building 2612, originally called the Liquid Oxygen (LOX) Cleaning Plant, was constructed in 1963 to support the ICBM program (Air Force 1997). The building housed a laboratory, fuel test area, hydraulic cleaning area, drying oven, parts storage, and a number of above-ground process tanks: a vapor degreaser tank, an alkali cleaning tank, four "pickling" tanks, an acid rinse tank, and a hot water tank (URS 2008). What actually occurred in the building is not known.

At the end of June 1965, the 556th Strategic Missile Squadron was deactivated (Broyhill 2011), and the use of Building 2612 as a LOX Cleaning Plant most likely ended. The equipment in the building was removed at some point between 1965 and 1970, when the Air Force began using Building 2612 as an unheated base equipment and supply warehouse. Its use as a warehouse continued until the base was closed in 1995. Materials stored at this facility included motor oil, lubricants, miscellaneous solvents, propylene and ethylene glycol, corrosion inhibitor, degreasers, aircraft cleaning compounds, hydraulic fluids, and electrical transformers.

From 1995 to early 1999, Building 2612 was used to store PARC's building materials and grounds equipment (e.g., tractors, yard equipment, mulch, snow plow parts, street sweeper brushes, and gypsum board). In the spring of 1999, the building was leased to a tenant for use as an equipment storage warehouse. In July 2009, ownership of the parcel containing Site SS-041 was transferred from the Air Force to PARC. Presently, Building 2612 continues to be used by a subsequent transferee as a warehouse.

2.0 HISTORY AND ENFORCEMENT ACTIVITIES

Several investigations have been performed to evaluate and mitigate soil, sediment, and groundwater contamination at Site SS-041. The investigations are listed and referenced below; they are discussed in greater detail in Section 5.1. A brief discussion of groundwater contamination at Site SS-041 is contained in Sections 5.1.3 and 5.1.5 of this ROD. Groundwater contamination at the site is addressed under a separate ROD for the FT-001/IA Groundwater OU.

3.0 COMMUNITY PARTICIPATION

The Air Force has kept the community informed regarding progress at Site SS-041 and other base IRP sites in several ways, including through Restoration Advisory Board (RAB) meetings that are open to the public. The RAB consists of the BRAC Cleanup Team (BCT) members (key representatives from the Air Force, USEPA, and NYSDEC) and several representatives from municipalities, community organizations, and associations including community members with environmental/engineering expertise.

Date	Activity	Description
1994	Basewide Environmental Baseline Survey (Air Force 1997)	Evaluation and classification of real property for potential environmental issues.
1996-1999	Supplemental Evaluation to the Environmental Baseline Survey (URS 2001)	Site inspection/reconnaissance at Building 2612; environmental sampling inside Building 2612; groundwater sampling; floor drains, ejection pit and piping cleaned, sealed and abandoned in place.
2001-2002	Remedial Investigation (URS 2003)	Geophysical survey; subsurface soil sampling below and adjacent to Building 2612; wetland sediment sampling; removal of buried piping and clarifier outside Building 2612; human health risk assessment and ecological risk assessment.
2003-2004	Supplemental Remedial Investigation (URS 2007)	Additional wetland sediment sampling; sediment removal; test trenching/soil sampling adjacent to Building 2616; subsurface soil samples at former ejection pit inside Building 2612.
2008	Final Remedial Investigation Report (URS 2008)	Consolidation of the reports on the remedial investigation (URS 2003) and the supplemental remedial investigation (URS 2007).

The RAB, which was chartered in 1995, serves as a forum for the community to become familiar with the restoration activities ongoing at the former Plattsburgh AFB and to provide input to the BCT.

The SS-041 Remedial Investigation (RI) Report, the Proposed Plan, which outlined the proposed remedial alternative, and other site-related documents in the Administrative Record are available on-line at the following Air Force Real Property Agency (AFRPA) web site: https://afrpaar.lackland.af.mil/ar/docsearch.aspx. The notice of the availability of these documents was published in the Plattsburgh *Press Republican* newspaper on **August 9, 2011**. Also, a 30-day public comment period was held from **August 12, 2011** to **September 12, 2011** to solicit public input on the Site SS-041 Proposed Plan. During this period, the public was invited to review the Administrative Record and comment on the preferred alternative being considered.

In addition, Plattsburgh AFB hosted a public meeting on **August 23, 2011** at the Clinton County Government Building, First Floor Meeting Room, 137 Margaret Street, Plattsburgh, New York, 12903. The date and time of the meeting was published in the Plattsburgh *Press Republican* newspaper. The meeting was divided into two segments. In the first segment, data gathered at the site, the preferred alternative, and the decision-making process were discussed. In the second segment, immediately after

the informational presentation, a formal public meeting was held to accept comments from the public about the remedial alternative being considered for Site SS-041. The public meeting transcript is included as Appendix A of this ROD and the responsiveness summary is included as Appendix B of this ROD. No comments for the Site SS-041 Proposed Plan were received from the public.

4.0 SCOPE AND ROLE OF OPERABLE UNIT

Site SS-041 is one of a number of sites administered under the Plattsburgh AFB IRP. RODs have been signed for 17 OUs at the base, and additional RODs are planned for other IRP sites. This ROD addresses sediment contamination that has been detected at Site SS-041. Groundwater contamination is being addressed by remedial actions that are part of the FT-002/IA Groundwater OU.

Surface water is not considered a media of concern for Site SS-041 because there is no consistent, long-term standing surface water at the site. There are significant threats to ecological receptors, specifically the short-tailed shrew and American woodcock, from exposure to sediments at the site and, therefore, further action is required for sediments at Site SS-041. In addition, residual sediment contaminant concentrations are above 6 NYCRR Part 375 Residential Use SCOs.

5.0 SITE CHARACTERISTICS

Air Force activities at Site SS-041 in the early 1960's resulted in contamination being released into the wetland south of Building 2612 that is a potential threat to ecological receptors. During the course of investigations at the site, buried piping, a clarifier, and the soil surrounding these features were removed from outside Building 2612. Inside the building, piping below the floor and an ejector pit were cleaned of accumulated debris, sealed with concrete and abandoned in place. Past investigations at Site SS-041 (Section 5.1), surface water hydrology (Section 5.2.1), site drainage (Section 5.2.2), the hydrogeologic setting (Section 5.2.3), and the nature and extent of sediment and soil contamination (Section 5.3) are summarized below.

5.1 Summary of Previous Site Activities

5.1.1 Basewide Environmental Baseline Survey

A Basewide Environmental Baseline Survey (EBS) was performed in 1994 to evaluate and classify real property for potential environmental issues (Air Force 1997). The EBS classified Building 2612 as a "Category 7" site with environmental factors that required additional investigation. Based upon this finding, the Air Force performed a Supplemental Evaluation to the EBS (SEBS) at the site.

5.1.2 Supplemental Evaluation to the Environmental Baseline Survey and Associated Removals

The SEBS began with site inspections and reconnaissance at Building 2612 in 1996 and 1997. Record drawings indicated that the floor and sink drains discharged into the storm sewer system on the east side of the building and ultimately to the federally–regulated wetland to the south. An ejection pit, which is an open top concrete-walled sump with associated submersible pump and piping, was also noted on the record drawings. This ejection pit, which was three feet by five feet and eight feet deep, collected sanitary wastewater and floor drain water from the building and discharged it to a sanitary manhole on the west side of Arizona Avenue.

In the summer of 1998, environmental samples were collected from inside the building and from three groundwater monitoring wells adjacent to the building. Interior samples included drain sediment, wastewater in the ejection pit, and concrete chip samples. Sample analyses revealed volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals were present in the floor drain and ejection pit sediments. The analytical data were used to perform an evaluation of human health risk for the building that concluded that Building 2612 was suitable for leasing in its November 1998 condition (URS 1998). It was also recommended that the floor drains, ejection pit, and associated piping inside the building be abandoned and sealed in place.

The recommendations were executed in January 1999 which included the cleaning and closure of the two drains, extraction of 200 gallons of water and 50 gallons of sediment from the ejection pit, and abandonment of the ejection pit. For abandonment, the ejection pit sump was filled to within six inches of the floor surface with compacted sand and then the top of the sump was capped with six inches of concrete. Groundwater samples and one sediment sample also were collected in 1999.

In consultation with the NYSDEC and USEPA, the Air Force determined that further investigation and action for Building 2612 should be undertaken according to the CERCLA RI process.

5.1.3 Remedial Investigation

The RI was performed between July 2001 and August 2002. Investigative tasks and response activities completed included: a geophysical survey to locate buried drain piping; test trenching along drainage lines and geophysical anomalies; pressure testing of drainage lines inside Building 2612; sampling, removal and disposal of buried drain lines on the south side of the building; removal of a buried drainage clarifier discovered during the test trenching; and collecting and testing of subsurface soil and

sediment samples. The findings of the RI, including a human health risk assessment (HRA) and a screening-level ecological risk assessment (ERA), are detailed in the RI Report (URS 2003).

For groundwater, based on the RI, it was concluded that: 1) groundwater at the site was contaminated with chlorinated hydrocarbons and metals from an upgradient source; 2) under a hypothetical future residential use scenario, groundwater presented a cancer and non-cancer risk greater than the USEPA thresholds 1 x 10^{-4} and 1, respectively; 3) there were no significant continuing contaminant sources to groundwater at Building 2612; 4) drainage features that could potentially serve as sources of contamination had been cleaned and abandoned, or removed; and 5) groundwater contamination at the site would be addressed as part of the FT-002/IA Groundwater OU. Given that the groundwater is being addressed as part of the FT-002/IA Groundwater OU, groundwater contamination will not be discussed further in this SS-041 ROD.

For soils, based on the RI, it was concluded that: 1) sporadic low level detections of VOCs, SVOCs and PCBs may have resulted from spills inside the building that migrated to the soil via leaky drainage features; however, the concentrations were below NYSDEC's Technical Administrative Guidance Memorandum (TAGMs 4046): *Determination of Soil Cleanup Objectives and Cleanup Levels* (NYSDEC 1994) and were determined to not be of concern; 2) metal concentrations that exceeded the New York State cleanup levels were not widespread and did not appear to be a significant source of contamination to groundwater; 3) soils in the vicinity of Building 2612 do not pose a significant risk to human health; and 4) high concentrations of polycyclic aromatic hydrocarbons (PAHs) in soil samples collected adjacent to Building 2616, to the north of Building 2612, were most likely from asphalt pieces in the soil samples and not associated with Building 2612 (see also Section 5.1.4).

Sediment samples from the wetland south of Building 2612 contained VOCs, PAHs, the PCB Aroclor 1260, and metals. Chemicals most likely mixed with water in the building floor drains and were then discharged into the wetlands. A variety of the contaminants detected exceeded New York State Sediment Screening Criteria (NYSDEC 1999a). The RI Report (URS 2003) recommended using test trenching to further evaluate the extent of sediment contamination in the southern wetland as well as the extent of PAH contamination in soil north of Building 2612.

5.1.4 Supplemental Remedial Investigation and Soil/Sediment Removals

In October 2003, test trenching was performed in response to the recommendations made in the RI Report to further evaluate the extent of chromium and cadmium concentrations in sediments south of Building 2612 and the anomalous PAH concentrations in soils at the southwest corner of Building 2616.

Approximately 14 cubic yards of sediments were removed from the wetland in two areas with metals concentrations that indicated an unacceptable ecological risk. The excavated sediments were characterized and transported off site to a permitted disposal facility. Ten confirmatory samples were collected from the perimeter of the excavation and submitted for laboratory analysis, and then the excavation was backfilled with clean soil. After backfilling the excavations, 20 additional sediment samples were collected in a grid pattern. The results of the confirmatory sampling indicated that there were still concentrations of cadmium and chromium in the remaining sediments that represented an unacceptable ecological risk.

Test trenching and soil sampling adjacent to Building 2616, also conducted in October 2003, demonstrated that the PAH contamination found in soil samples collected near Building 2616 was most likely due to asphalt pieces present in the soil caused by previous repeated excavating/backfilling activities through the surficial asphalt pavement. No further action appears warranted for the area of PAH- contaminated soil. During the test trenching, approximately three cubic yards of soil were removed and disposed of off-site.

In February 2004, three Geoprobe® soil samples were collected near the former ejection pit (see Figure 4). The samples were collected from 8 to 10 feet below ground surface to characterize soils below the bottom of the pit. Each sample was analyzed for VOCs, SVOCs, PCBs, and metals. No compounds were detected at concentrations greater than their respective New York State cleanup levels values (NYSDEC 1994).

In 2008, the RI Report (URS 2003) and the RI Addendum Report (URS 2007) were consolidated into a single Final RI Report (URS 2008).

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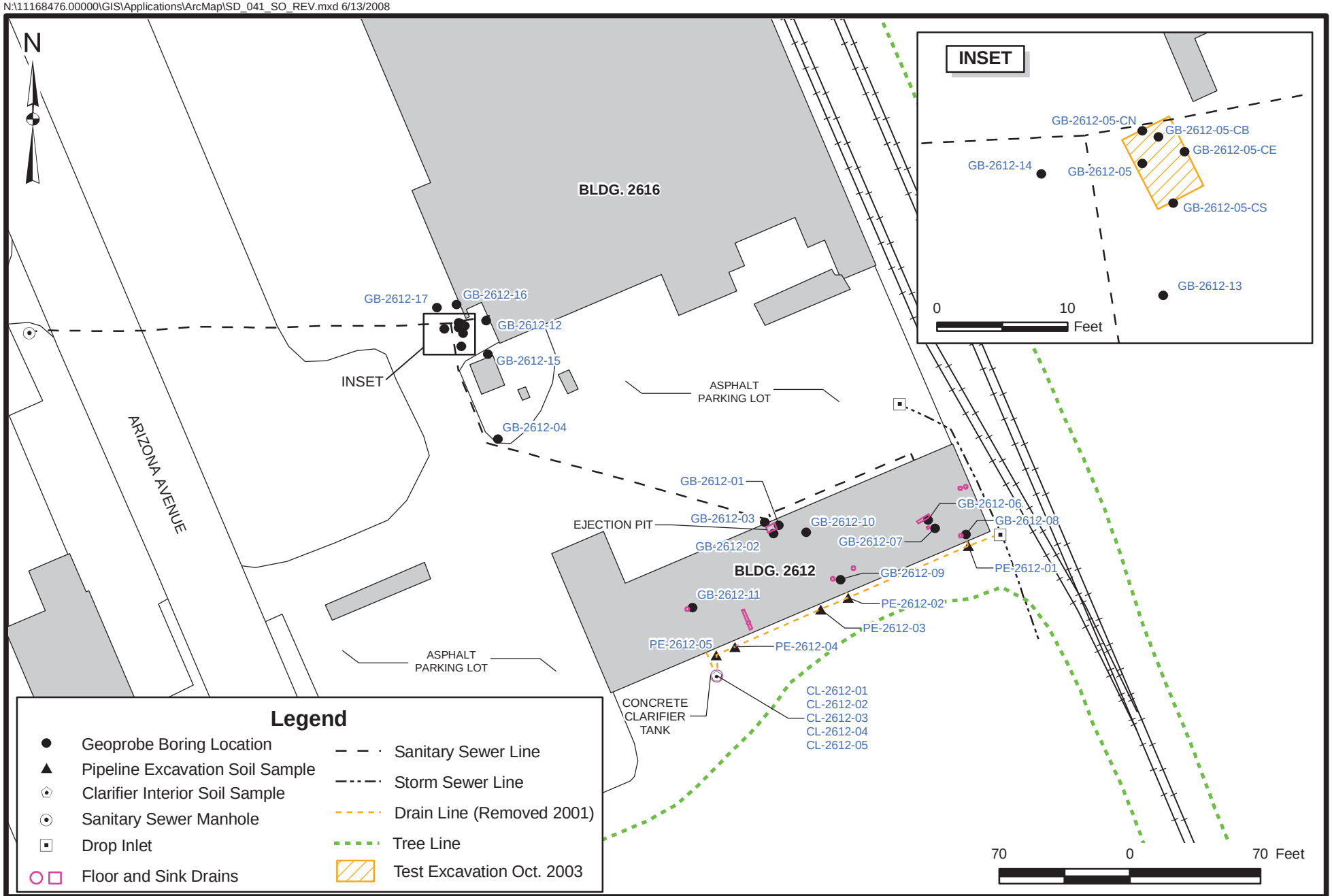


BUILDING 2612 - SITE SS-041
SOIL SAMPLING LOCATIONS

FIGURE 4

5.1.5 Soil Vapor Intrusion Investigation and Groundwater Plume

A groundwater contaminant plume originating at the former FT-002 site, located approximately one mile to the west-northwest of Site SS-041, has migrated into the Industrial Area east of the flight line. The plume raised concerns about the potential for vapor intrusion into buildings caused by volatilization of chemical contaminants in the groundwater. Consequently, in 2006, a study was initiated to evaluate soil vapor intrusion into 14 of the Industrial Area buildings. Building 2612, located on Site SS-041, was included in the study. A description of the investigation and recommendations related to the potential for vapor intrusion from groundwater appears in documents for the FT-002/IA Groundwater OU. The potential for unacceptable risk associated with SVI in Building 2612 has been addressed through institutional controls which have already been placed in the deed to the Site SS-041 property at the time of its transfer, as mentioned in Section 12.

5.2 Surface Water and Groundwater

5.2.1 Surface Water Hydrology

Plattsburgh AFB lies within the Lake Champlain drainage basin. The dominant surface water features in the vicinity of Plattsburgh AFB are the Saranac River to the north, the Salmon River to the south, and Lake Champlain to the east. The Saranac and Salmon Rivers, which discharge into Lake Champlain, originate west of Plattsburgh AFB in the Adirondack Mountains. A network of drainage ways carries surface water runoff from the base into sewers and streams that lead to off-base areas.

5.2.2 Site Drainage

The surface drainage at Site SS-041 is controlled by topography and by drainage features engineered during the construction of the base. Areas to the west and north of Building 2612 are paved and relatively flat (see Figure 2). Precipitation either puddles on the pavement until it evaporates, or runs off to the grassy medians surrounding the pavement and potentially infiltrates to groundwater. Storm drain drop inlets are present on the eastern side of the building and carry any collected water to the depressional wetland area south of the building. Heavy surface runoff would also flow to this depressional area. The depressional wetland area is connected to a southward trending drainage ditch that leads to the Golf Course drainage system; however, grades in the ditch have not been maintained and surface water most likely leaves the depressional wetland area mainly by evapo-transpiration or infiltration to groundwater, except during extreme storm events.

If surface water drainage from the site did reach the Golf Course drainage system, it would be carried eastward to Lake Champlain. The Golf Course streams are classified by NYSDEC as Class D water bodies. Class D water bodies are characterized as suitable for fishing and for primary and secondary contact recreation, even though other factors may limit their use for these purposes (NYSDEC 1999b).

5.2.3 Hydrogeologic Setting

Stratigraphy in the Site SS-041 area generally consists of five units from top to bottom: sandy fill and regraded surficial deposits; native fine sand; silt and clay; glacial till; and bedrock. Groundwater at Site SS-041 occurs in both the overburden deposits and bedrock. Hydrologically, the stratigraphic column can be divided into the following units: the vadose (unsaturated) zone, present in the fill/regraded material and the sand unit; the unconfined water table aquifer, also present in the fill/regraded material and the sand unit; a confining layer (aquitard) formed by the silt and clay unit; the confined till water-bearing zone; and the confined bedrock aquifer.

The unsaturated vadose zone is between the ground surface and water table. Its thickness in the vicinity of Building 2612 is generally on the order of four to five feet, although the vadose zone can be absent in depressional areas such as the wetlands south and east of Building 2612.

The morphology of the water table surface is similar to surface topography. Groundwater in the area flows to the east-southeast at horizontal gradients ranging from 0.010 foot/foot west of the site to 0.030 foot/foot east of the site. The aquifer thickness in the site area ranges from about 10 to 20 feet, thinning from west to east and eventually disappearing farther to the east. Groundwater appears to discharge to streams running through the Barracks Golf Course, east of the site.

The silt and clay unit forms a confining layer (aquitard) that separates the water table aquifer from the underlying till water-bearing zone and the bedrock aquifer. The silt and clay unit, about 15 to 20 feet thick, is continuous beneath and in the vicinity of Site SS-041. This unit effectively confines the underlying units and restricts groundwater movement between the water table aquifer and the till water-bearing zone/bedrock aquifer.

Groundwater elevation measurements indicate an eastward to southeastward horizontal groundwater flow direction in the southeastern portion of the base. Vertical gradients between the till water-bearing zone and the unconfined aquifer appear to be upward west of the base, in the vicinity of the

Golf Course, and at the southern end of the runway, but the gradient is downward in the flight line industrial corridor.

The bedrock aquifer is isolated from the unconfined sand aquifer by the overlying silt and clay unit. Groundwater movement in the bedrock is controlled by physical characteristics of the rock such as porosity, fractures, faults, bedding planes, joints, and solution cavities. Regionally, fractured bedrock groundwater flow is controlled by the potentiometric surface, which slopes east-southeastward toward Lake Champlain. As stated above, the groundwater contamination at Site SS-041 is being addressed under the FT-002/IA Groundwater OU.

5.3 Nature and Extent of Contamination

5.3.1 Wetland Sediment Contamination

Several sediment sampling events occurred at Site SS-041 to identify and evaluate the extent of contamination. A variety of VOCs, SVOCs, PCBs, and metals have been detected in sediments at Site SS-041. Sediment contamination likely originated from chemical spills on the floor of the building, which were washed into floor drains and ultimately were discharged to the wetland, thereby impacting sediment quality.

NYSDEC's *Technical Guidance for Screening of Contaminated Sediments* (NYSDEC 1999a) was used to initially screen the wetland sediment data; the SCOs listed in 6 NYCRR Part 375 are not applicable to wetland sediments (NYSDEC 2010b). The initial screening identified the PCB Aroclor 1260 plus eight metals (antimony, cadmium, chromium (total), copper, iron, lead, mercury, and zinc) as potential COCs to ecological receptors in the wetland south of Building 2612; however, NYSDEC's sediment guidance values for metals are for benthic organisms that are not viable in the intermittent surface water environment of this wetland. Therefore, to further evaluate the sediment contamination for these COCs, a screening-level ERA was performed for terrestrial species that could be exposed to the sediments. Consequently, the extent of sediment contamination in the wetland is defined as those areas where concentrations of cadmium and chromium exceed two ecological risk-based screening criteria; 2.5 mg/kg for cadmium and 150 mg/kg for chromium (URS 2007). Sediments containing either of these two compounds at concentrations higher than these screening levels represent a risk to terrestrial receptors (see also Section 7.2). For previous investigations, only total concentrations of chromium were analyzed. Trivalent and hexavalent chromium were not analyzed individually. Therefore the ecological remediation goals and ERA are based on total chromium concentrations.

Table 1 summarizes the detected concentrations of analytes in wetland sediment samples from Site SS-041. Sediment sample locations are shown on Figures 5 through 9. Many of the maximum concentrations occurred at sediment sample locations SED-2612-3, -4, and –6; however, sediments were removed at these locations in October 2003.

Given the presence of exceedances at 2 to 3 ft below ground surface (bgs), the sediment sample results were also compared to 6 NYCRR Part 375 Residential Use SCOs. Results showed cadmium and chromium concentrations were also above the residential use SCOs of 22 mg/kg (hexavalent chromium), 36 mg/kg (trivalent chromium), and 2.5 mg/kg (cadmium, same as ecological criteria). Sediments containing these exceedances may pose a risk to human health for residential users, although the future anticipated use is not residential.

Test trenches were excavated around these three previous sampling locations in October 2003 (see Figure 6). One test trench was excavated at sample locations SED-2612-3 and SED-2612–4 to investigate the extent of lead concentrations above Plattsburgh AFB background levels, and a second test trench was made at location SED-2612–6 to investigate the extent of elevated cadmium and chromium concentrations. All of the excavated sediments were taken off-site for disposal. Confirmatory samples taken around the excavation at sample SED-2612-6 still contained elevated concentrations of cadmium and chromium. Therefore, in late October 2003, 20 additional samples were collected in a grid pattern to evaluate the extent of cadmium and chromium in the wetland. The sample locations are shown on Figure 7.

Figures 8 and 9 show concentrations of cadmium and chromium, respectively, that were found in sediment samples collected after the October 2003 excavations. Concentrations from historical samples collected in areas not affected by excavation activities are also shown. The most elevated concentrations appear to occur in the top two feet of sediment. The figures include an estimate of the extent of sediment contamination at levels higher than the screening levels noted above.

The area containing elevated cadmium (>2.5 mg/kg) and chromium (>150 mg/kg) concentrations is on the order of 3,400 square feet and approximately 2 feet deep. The RI Addendum Report (URS 2007) recommended that sediments in this area of the site, about 250 cubic yards, be removed to mitigate the potential ecological risks, and the site restored.

TABLE 1

SUMMARY OF ANALYTES DETECTED IN SEDIMENT SAMPLES [1]

PARAMETER	NO. OF SAMPLES	NO. OF DETECTIONS	MAXIMUM DETECTED VALUE	MINIMUM DETECTED VALUE	LOCATION OF MAXIMUM VALUE	AVERAGE VALUE
VOLATILE ORGANIC COMPOUNDS (µg/kg)						
1,2-Dichloroethene (cis)	10	3	5.9	3.1	SED-2612-3	1.6
1,2-Dichloroethene (trans)	10	1	3.6	3.6	SED-2612-5	0.9
Acetone	10	2	191	12.1	SED-2612-5	22.4
Methyl ethyl ketone (2-Butanone)	10	1	54.9	54.9	SED-2612-5	6.4
Trichloroethene	10	6	26.7	3.4	SED-2612-1	6.2
SEMI-VOLATILE ORGANIC COMPOUNDS (µg/kg)						
Acenaphthene	10	4	149	34.1	SED-2612-4	40.7
Acetophenone	10	1	206	206	SED-2612-4	50.2
Anthracene	10	5	180	49.3	SED-2612-4	59
Benzaldehyde	10	2	106	70.6	SED-2612-5	41.4
Benzo(a)anthracene	10	6	468	55.1	SED-2612-4	142.4
Benzo(a)pyrene	10	6	520	58	SED-2612-4	150
Benzo(b)fluoranthene	10	7	828	38.4	SED-2612-4	194.5
Benzo(g,h,i)perylene	10	5	156	56.1	SED-2612-4	56.4
Benzo(k)fluoranthene	10	6	692	73.5	SED-2612-4	187.2
bis(2-Ethylhexyl)phthalate	10	9	9941	112	SED-2612-3	1967
Carbazole	10	5	161	48.2	SED-2612-4	51.7
Chrysene	10	6	550	69.1	SED-2612-4	168.6
Dibenz(a,h)anthracene	10	2	59.8	39	SED-2612-4	20.2
Dibenzofuran	10	1	58	58	SED-2612-4	23.6
Fluoranthene	10	7	1765	46.6	SED-2612-4	463.9
Fluorene	10	3	134	33	SED-2612-4	35.1
Indeno(1,2,3-cd)pyrene	10	5	122	35.9	SED-2612-1	51.9
Naphthalene	10	1	65.9	65.9	SED-2612-4	17.3
Phenanthrene	10	6	770	97.2	SED-2612-4	229.7
Pyrene	10	6	771	59.9	SED-2612-4	190.9
METALS (mg/kg)						
Aluminum	10	10	4,419	577	SED-2612-5	2000
Antimony	10	6	1.2	0.52	SED-2612-3	0.6
Arsenic	10	8	2.4	0.79	SED-2612-2	1.4
Barium	10	10	173	11.6	SED-2612-4	54.4
Beryllium	9	9	0.69	0.12	SED-2612-5	0.3
Cadmium	33	23	8.59	0.46	SED-2612-6	1.6
Calcium	10	10	9,325	693	SED-2612-3	4219
Chromium (Total)	33	33	1,947	4.4	SED-2612-6	236.2
Cobalt	10	10	3.8	0.26	SED-2612-4	1.9
Copper	10	10	39.4	2.9	SED-2612-4	13.4
Iron	10	10	61,608	2,289	SED-2612-3	23,571
Lead	16	16	104	7.4	SED-2612-3	43.3
Magnesium	10	10	1,483	119	SED-2612-4	883
Manganese	10	10	345	12.1	SED-2612-3	150.4
Mercury	16	16	1.5	0.049	SED-2612-4	0.3
Nickel	10	10	12.2	0.9	SED-2612-4	5.1
Potassium	10	10	298	122	SED-2612-4	206.8
Sodium	10	10	129	43.4	SED-2612-3	75.1

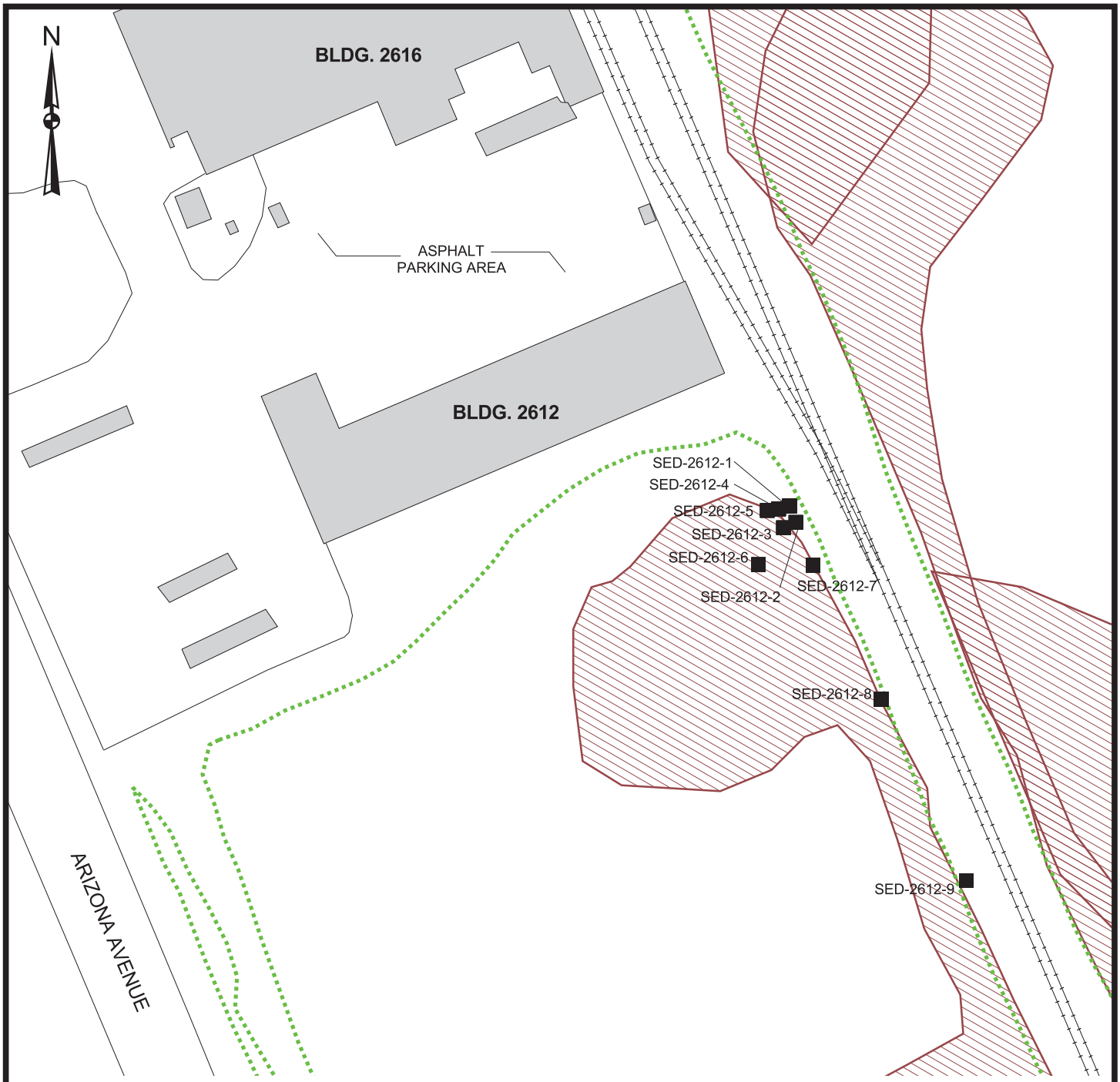
TABLE 1 (continued)
SUMMARY OF ANALYTES DETECTED IN SEDIMENT SAMPLES [1]

PARAMETER	NO. OF SAMPLES	NO. OF DETECTIONS	MAXIMUM DETECTED VALUE	MINIMUM DETECTED VALUE	LOCATION OF MAXIMUM VALUE	AVERAGE VALUE
Vanadium	10	10	56.8	5.6	SED-2612-5	29.2
Zinc	10	10	633	36.9	SED-2612-2	348.7
PCBs (µg/kg)						
Aroclor 1254	29	6	389	13.6	SED-2612-2	38
Aroclor 1260	29	17	335	9.2	SED-2612-1	53

Notes:

1. New York State sediment guidance values (NYSDEC 1999a) for VOCs, SVOCs and PCBs are a function of total organic carbon and are determined on a sample-by-sample basis. There are also four sets of criteria: human health, benthic aquatic life acute and chronic toxicity, and wildlife bioaccumulation. Metals have two criteria, a lowest effect level and a severe effect level. Consequently the sediment guidance values cannot be listed in this table.

µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram



SAMPLE SED-2612-	Sample Date
5	July 1999
1-5	July/August 2001
1-9	April 2002

Legend

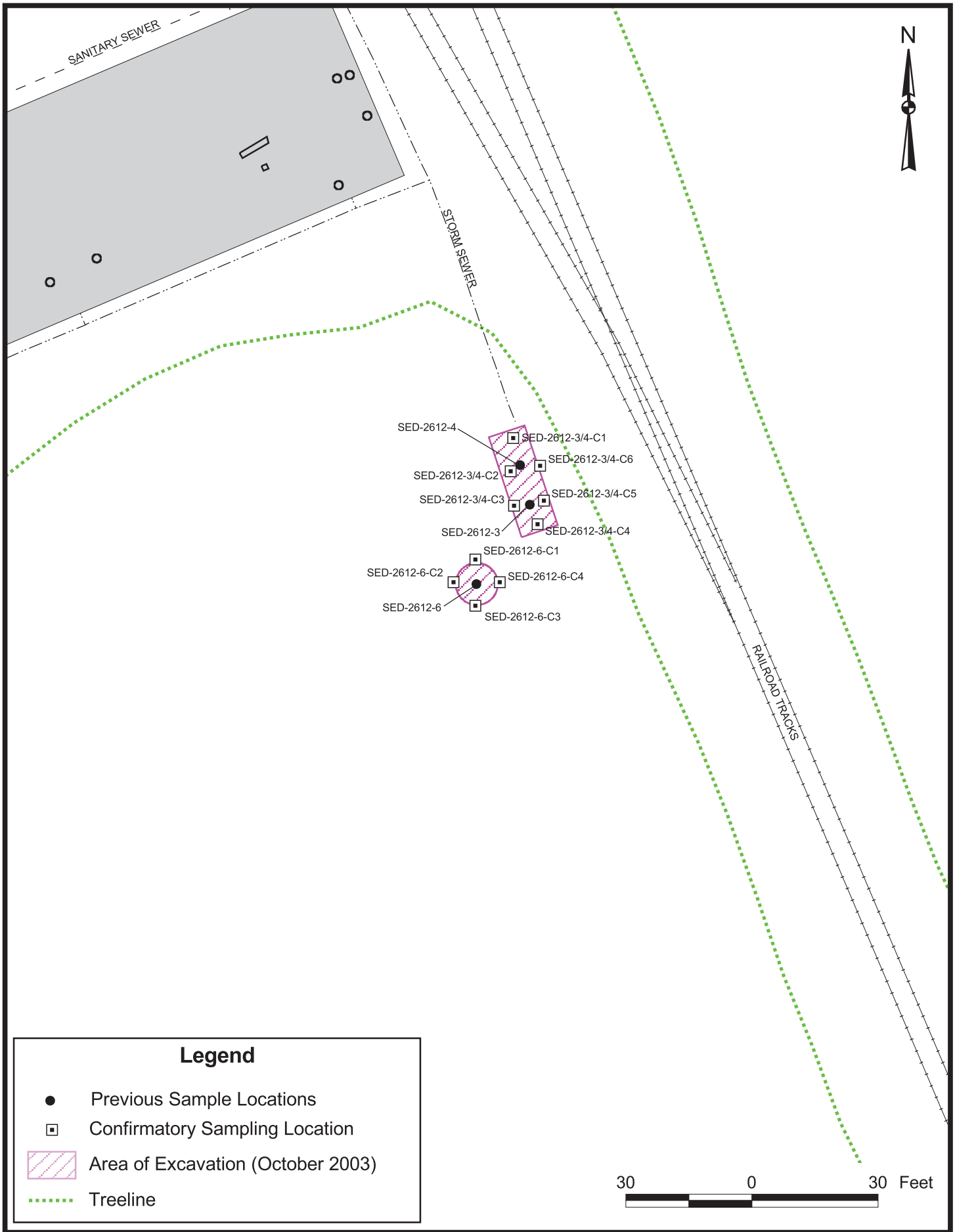
- Sediment Sample Location
- Federal Wetland

80 0 80 Feet

BUILDING 2612 - SITE SS-041
WETLAND SEDIMENT SAMPLE LOCATIONS
1999, 2001 & 2002

FIGURE 5

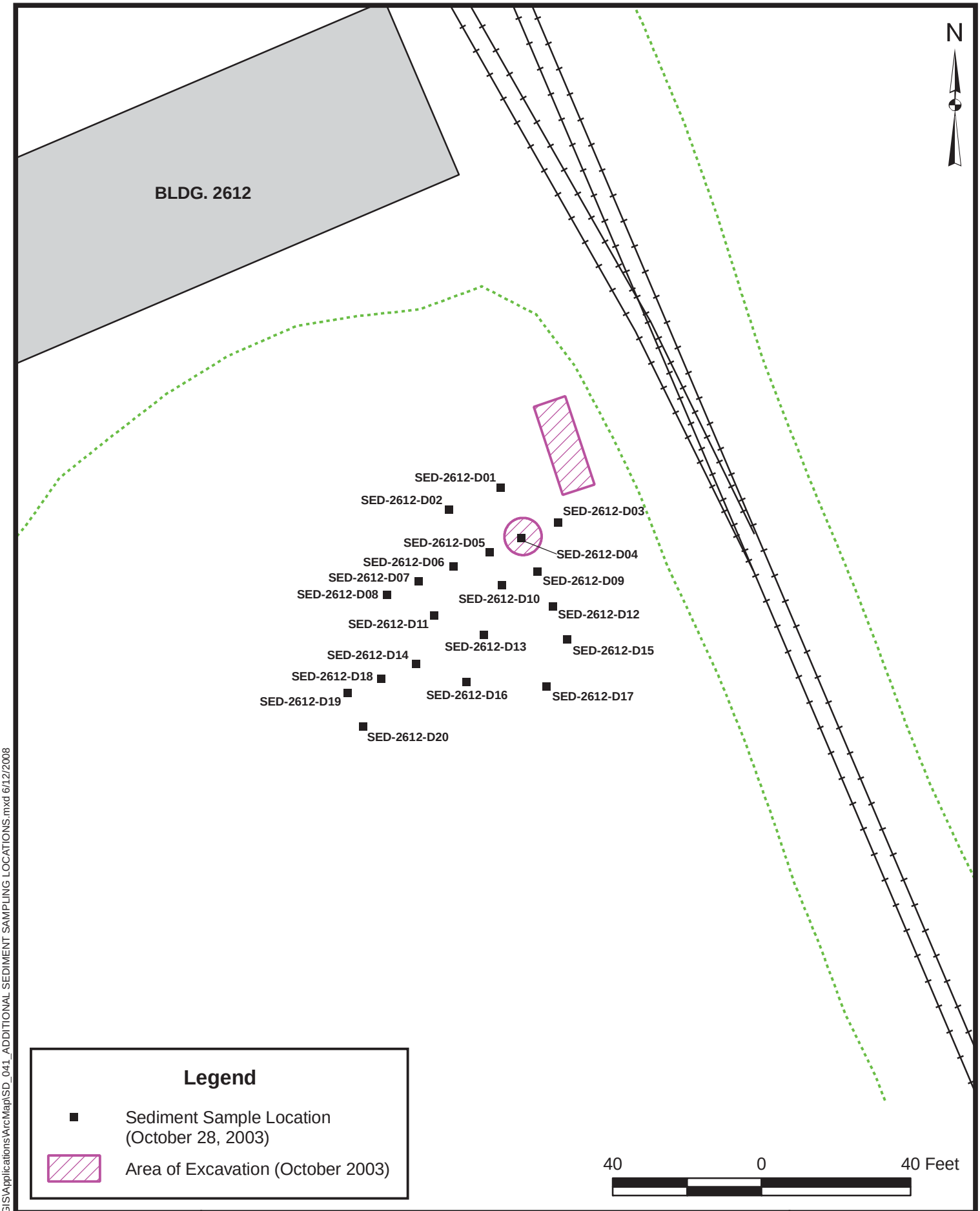
N:\11168476.00000\GIS\Applications\Sd-041.apr SEDIMENT SAMPLE LOCATIONS



BUILDING 2612 - SITE SS-041
OCT. 2003 TEST TRENCH AND CONFIRMATORY SAMPLING LOCATIONS IN WETLAND AREA

FIGURE 6

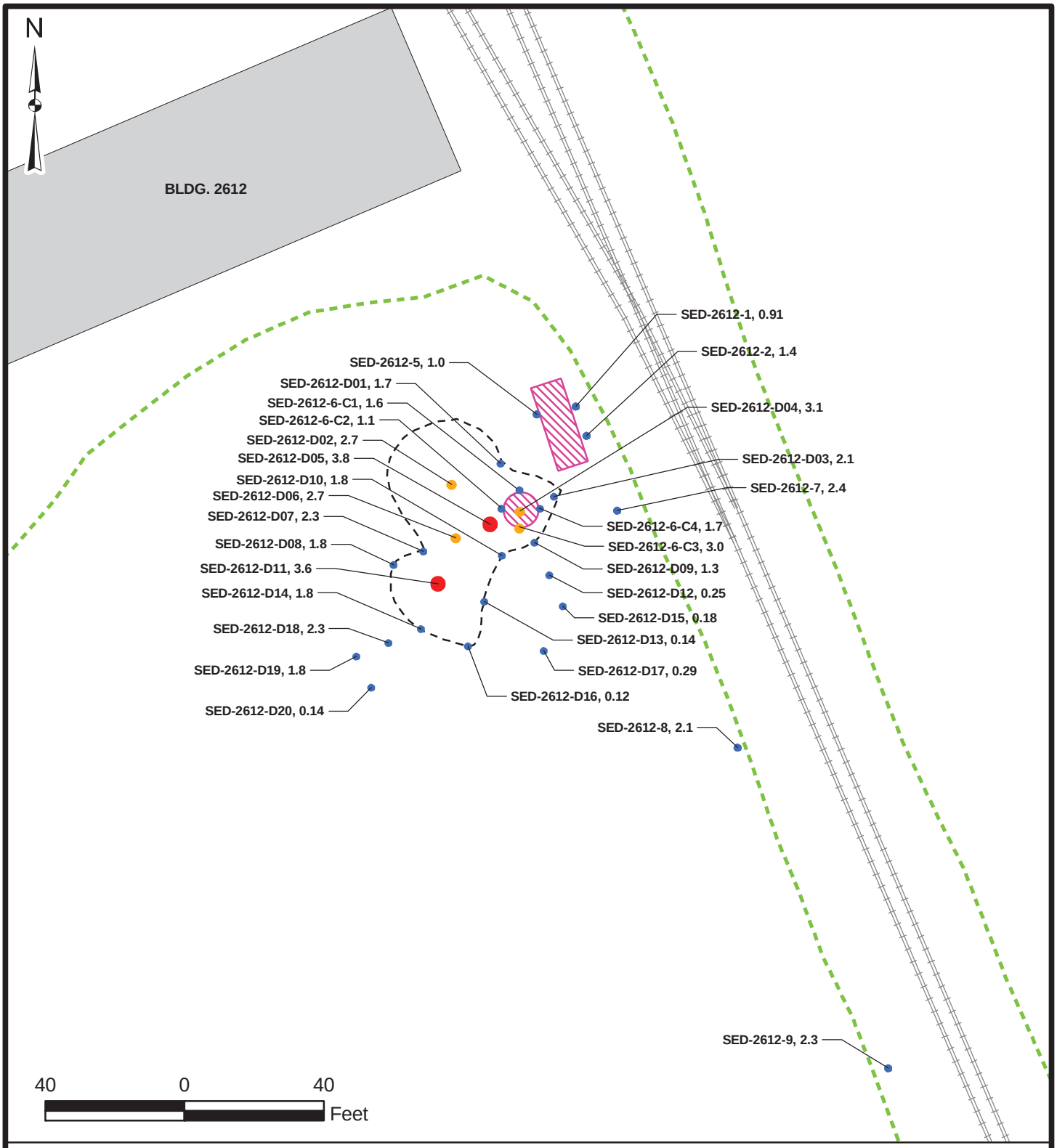
N:\11168476.00000\GIS\Applications\Sd-041.apr TEST TRENCH AND CONFIRMATORY SAMPLING LOCATIONS IN WETLAND AREA
6/12/2008



N:\11168476.00000\GIS\Applications\ArcMap\SD_041_ADDITIONAL SEDIMENT SAMPLING LOCATIONS.mxd 6/12/2008

BUILDING 2612 - SITE SS-041
ADDITIONAL SEDIMENT SAMPLING LOCATIONS

FIGURE 7



Legend

Cadmium Concentration (MG/KG) :

- 0 - 2.5
- 2.5 - 3.5
- > 3.5

SED-2612-D20, 0.137

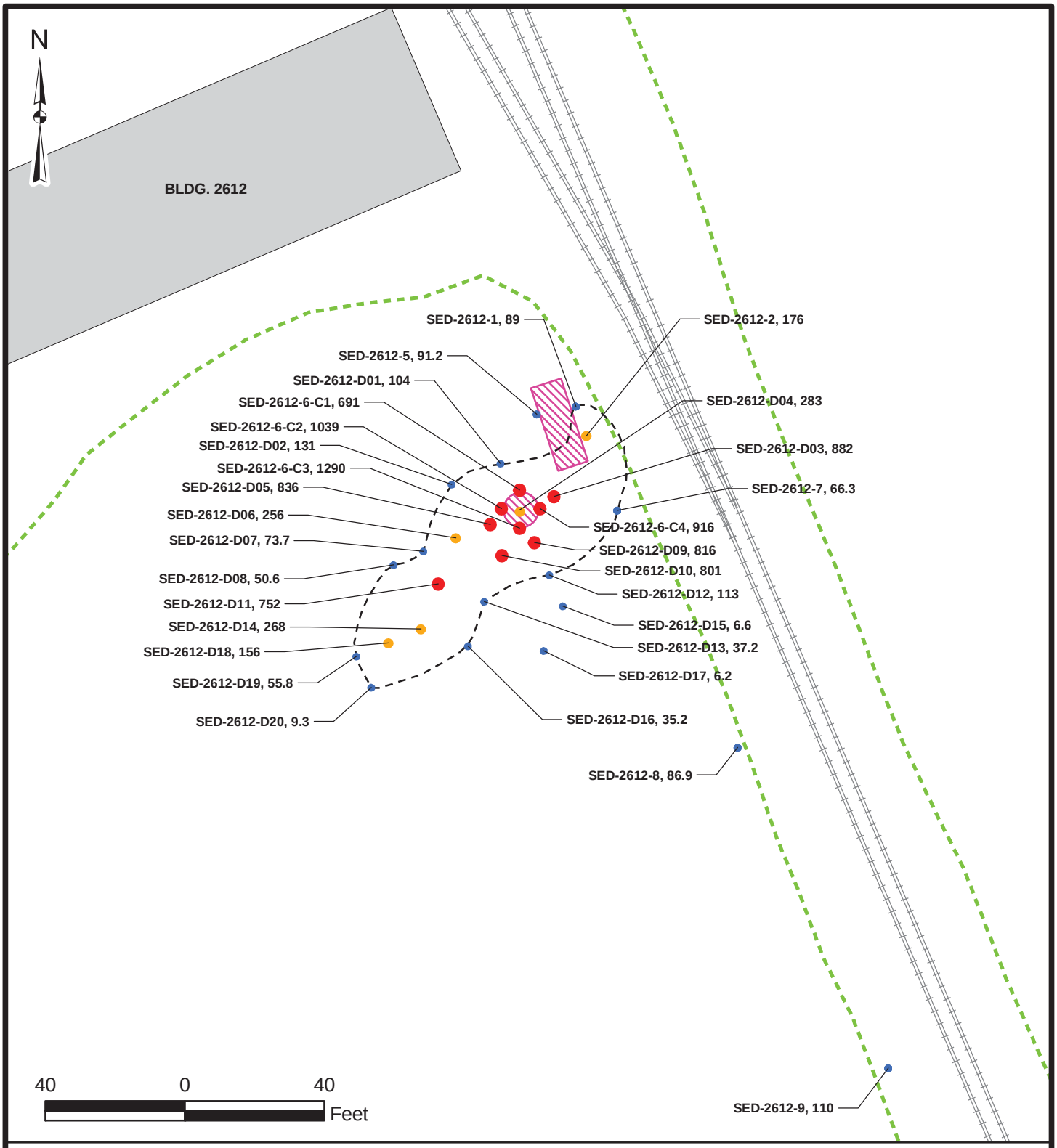
Location ID: Concentration

- Potential Area of Excavation
- Railroad Tracks
- Treeline
- Area Of Excavation (October 2003)

BUILDING 2612 - SITE SS-041
POST EXCAVATION CADMIUM CONCENTRATIONS
IN SEDIMENT SAMPLES

FIGURE 8

N:\11168476.00000\GIS\Applications\ArcMap\SD_041_SEDIMENT-CADMIUM-2003.mxd 6/1/2011



Legend

Chromium Concentration (MG/KG) :

- 0 - 150
- 150 - 500
- > 500

SED-2612-D20, 0.137

Location ID: Concentration

- Potential Area of Excavation
- Railroad Tracks
- Treeline
- Area Of Excavation (October 2003)

BUILDING 2612 - SITE SS-041
POST EXCAVATION CHROMIUM CONCENTRATIONS
IN SEDIMENT SAMPLES

FIGURE 9

N:\11168476.00000\GIS\Applications\ArcMap\SD_041_SEDIMENT-CHROMIUM-2003.mxd 6/1/2011

The Air Force will conduct additional sampling/delineation to determine if concentrations of hexavalent chromium, trivalent chromium, and/or cadmium are above remediation goals in sediment areas near the area already identified for excavation. Excavation will be conducted in areas where sampling results show concentrations above the remediation goals.

5.3.2 Soil Contamination

The nature and extent of analytes in soil has been identified in the RI (URS 2003) and the RI Addendum (URS 2007). Detected parameters in soil included VOCs, SVOCs, PCBs and metals. Sample locations are shown on Figure 4. Note that during excavations to remove buried piping and associated features, and also during investigative test trenching, some of the soils represented by these samples was removed and disposed of off-site.

The residual soil concentrations at the site are provided in Table 2.

Subsurface soil samples were collected during the RI at or near potential sources for chlorinated hydrocarbons and metals contamination in groundwater that included: 1) the ejection pit sump situated along the north wall of Building 2612; 2) floor drains and underground piping beneath the floor of Building 2612; 3) the storm sewer line running outside of the southern wall of Building 2612 (which drained to wetlands south of the building); and 4) the sanitary sewer line that connected the ejection pit sump to a manhole west of Arizona Avenue. Sporadic low level detections of VOCs, SVOCs, and PCBs in samples collected in the immediate vicinity of Building 2612 indicated that the soils may have been impacted by spills reaching leaky drainage features.

The concentrations of several metals detected in the soil samples (cadmium, calcium, chromium, mercury, selenium, and zinc) did exceed their respective cleanup levels during the RI. These same metals were also detected in the floor drain and ejection pit sediment samples. Most of the metals exceedances of cleanup levels were collected from the pipeline excavation along the southern wall of Building 2612, which was subsequently removed. Two other locations (i.e., GB-2612-02 and -06) showed three metals exceedances, but one exceedance (chromium in GB-2612-06) was not reproduced in its duplicate sample.

Therefore, there does not appear to be a widespread pattern of metals contamination in soils beneath or in the vicinity of Building 2612 due to leaky drainage features. Soils at the site do not appear to represent a significant source, if any, for groundwater contamination.

TABLE 2
SUMMARY OF ANALYTES DETECTED IN SOIL SAMPLES

Sampling ID	6-NYCRR Part 375 Residential use Soil Cleanup Objectives	6-NYCRR Part 375 Commercial use Soil Cleanup Objectives	6-NYCRR Part 375 Industrial use Soil Cleanup Objectives	PE-2612-01	PE-2612-02	PE-2612-04	GB-2612-02	GB-2612-04	GB-2612-06
Date Sampled				**5-5.5**	**4.8-5**	**4.5-5**	**4-8**	**5-8**	**0-4**
Depth Interval (ft bgs)				**7/17/01**	**7/18/01**	**7/18/01**	**7/19/01**	**7/19/01**	**8/21/01**
VOCs (µg/kg)									
1,2-Dichloroethene (cis)	59,000	500,000	1,000,000	ND	ND	2.5	3.71	ND	ND
Cyclohexane	NA	NA	NA	ND	ND	4.63	ND	ND	ND
Methyl ethyl ketone (2-Butanone)	100,000	500,000	1,000,000	ND	ND	ND	ND	5.2	ND
Methylcyclohexane	NA	NA	NA	ND	ND	17.5	ND	ND	ND
Toluene	100,000	500,000	1,000,000	ND	ND	4	ND	ND	ND
Trichloroethene	10,000	200,000	400,000	ND	ND	12.1	ND	ND	ND
Vinyl chloride	210	13,000	27,000	ND	ND	10.4	ND	ND	ND
SVOCs (µg/kg)									
Benzo(a)anthracene	1,000	5,600	11,000	ND	ND	ND	ND	71.2	ND
Benzo(a)pyrene	1,000	1,000	1,100	ND	ND	ND	ND	64	ND
Benzo(b)fluoranthene	1,000	56,000	11,000	ND	ND	ND	ND	57.2	ND
Benzo(g,h,i)perylene	100,000	500,000	1,000,000	ND	ND	ND	ND	66	ND
Benzo(k)fluoranthene	1,000	5,600	110,000	ND	ND	ND	ND	52	ND
bis(2-Ethylhexyl)phthalate	NA	NA	NA	106	97.3	ND	ND	ND	ND
Chrysene	1,000	56,000	110,000	ND	ND	458	ND	73	ND
Fluoranthene	100,000	500,000	1,000,000	ND	ND	ND	43	141	ND
Indeno(1,2,3-cd)pyrene	500	56,000	11,000	ND	ND	ND	ND	71.6	ND
Phenanthrene	100,000	500,000	1,000,000	ND	ND	ND	ND	54.3	ND

Notes:
ND = non-detect

TABLE 2 (continued)
SUMMARY OF ANALYTES DETECTED IN SOIL SAMPLES

Sampling ID	6-NYCRR Part 375 Residential use Soil Cleanup Objectives	6-NYCRR Part 375 Commercial use Soil Cleanup Objectives	6-NYCRR Part 375 Industrial use Soil Cleanup Objectives	PE-2612-01	PE-2612-02	PE-2612-04	GB-2612-02	GB-2612-04	GB-2612-06
Date Sampled				5-5.5	4.8-5	4.5-5	4-8	5-8	0-4
Depth Interval (ft bgs)				7/17/01	7/18/01	7/18/01	7/19/01	7/19/01	8/21/01
Metals (mg/kg)									
Aluminum	NA	NA	NA	1,702	2,209	1,562	1,538	1,472	356
Antimony	NA	NA	NA	ND	ND	ND	0.67	ND	0.58
Arsenic	16	16	16	ND	0.6	0.47	ND	ND	1.6
Barium	350	400	400	11.6	25	15.6	12.9	7.8	7.5
Beryllium	14	590	2,700	0.16	0.18	0.14	0.11	0.15	ND
Cadmium	2.5	9.3	60	ND	2.8	ND	ND	ND	ND
Calcium	NA	NA	NA	1,963	2,383	751	45,961	5,916	2,994
Chromium	22	400	800	2.5	25	3	4.1	5	76.2
Cobalt	NA	NA	NA	1.4	1.9	1	1.3	1.4	0.33
Copper	270	270	10,000	2.2	5.5	0.93	3.1	2	3.6
Iron	NA	NA	NA	3,342	5,022	4,366	3,774	9,068	4,177
Lead	400	1,000	3,900	2.2	1.9	0.75	0.39	1.8	16.3
Magnesium	NA	NA	NA	864	1,340	626	1139	954	224
Manganese	2,000	10,000	10,000	73.4	125	37	38.2	98.9	22.6
Mercury	0.81	2.8	5.7	0.28	ND	ND	0.02	0.03	ND
Nickel	140	310	10,000	2.4	3.2	ND	1.8	1.7	1.1
Potassium	NA	NA	NA	268	293	216	267	201	30.8
Selenium	36	1,500	6,800	ND	ND	ND	6.8	ND	ND
Sodium	NA	NA	NA	34.7	33	23.8	41.1	73.6	21.6
Vanadium	NA	NA	NA	4.8	6.5	5.7	6	13.5	3.8
Zinc	2,200	10,000	10,000	41.2	42.9	22.3	20	12.1	17.1

Notes:
ND = non-detect

TABLE 2 (continued)
SUMMARY OF ANALYTES DETECTED IN SOIL SAMPLES

Sampling ID	6-NYCRR Part 375 Residential use Soil Cleanup Objectives	6-NYCRR Part 375 Commercial use Soil Cleanup Objectives	6-NYCRR Part 375 Industrial use Soil Cleanup Objectives	GB-2612-12	GB-2612-13	GB-2612-05CB	GB-2612-05CE	GB-2612-05CN	GB-2612-05CS
Date Sampled				**12/04/01**	**12/04/01**	**10/15/03**	**10/15/03**	**10/15/03**	**10/15/03**
Depth Interval (ft bgs)				**4-8**	**4-8**	**3-3.5**	**2.5-3**	**2.5-3**	**2.5-3**
SVOCs (µg/kg)									
2-Methylnaphthalene	NA	NA	NA	57	ND	ND	ND	ND	ND
Acenaphthene	100,000	500,000	1,000,000	803	ND	1,072	155	24,849	56.8
Acenaphthylene	100,000	500,000	1,000,000	ND	ND	ND	ND	ND	72.5
Acetophenone	NA	NA	NA	ND	ND	ND	ND	ND	ND
Anthracene	100,000	500,000	1,000,000	976	ND	460	36.9	14,760	17.5
Benzo(a)anthracene	1,000	5,600	11,000	1,936	ND	914	157	20,105	57.6
Benzo(a)pyrene	1,000	1,000	1,100	1,614	195	982	212	20,041	82.5
Benzo(b)fluoranthene	1,000	56,000	11,000	1,945	ND	558	121	11,204	49.6
Benzo(g,h,i)perylene	100,000	500,000	1,000,000	792	ND	470	107	6,999	65.2
Benzo(k)fluoranthene	1,000	56,000	110,000	772	ND	378	80.8	7,507	42.2
bis(2-Ethylhexyl)phthalate	NA	NA	NA	ND	ND	ND	ND	ND	ND
Carbazole	NA	NA	NA	517	ND	ND	ND	ND	ND
Chrysene	1,000	56,000	110,000	1,787	ND	973	172	31,613	44.8
Dibenz(a,h)anthracene	330	560	1,100	173	ND	ND	ND	ND	ND
Dibenzofuran	NA	NA	NA	208	ND	ND	ND	ND	ND
Di-n-butyl phthalate	NA	NA	NA	ND	ND	ND	ND	ND	ND
Fluoranthene	100,000	500,000	1,000,000	4,164	ND	1,798	312	53,981	126
Fluorene	100,000	500,000	1,000,000	505	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	500	5,600	11,000	738	ND	402	ND	7,092	40.6
Naphthalene	100,000	500,000	1,000,000	159	ND	ND	ND	3,755	ND
Phenanthrene	100,000	500,000	1,000,000	3,409	ND	1,026	95.8	36,444	40.6
Pyrene	100,000	500,000	1,000,000	3,354	ND	1,245	407	32,085	167

Notes: VOCs and metals not analyzed.
NA = not available.
ND = non-detect.
R = The data was rejected.

Some of the maximum detected concentrations for VOCs, SVOCs, and metals listed in Table 1 were from soil samples collected inside the concrete clarifier tank (i.e., CL-2612-01 and CL-2612-03). These soils were removed from the clarifier and disposed of off-site when the clarifier was removed in August 2001 (URS 2003).

In the course of investigating the sanitary sewer north of Building 2612, high levels of PAHs were detected near the juncture of two lines located near Building 2616, specifically at sample location GB-2612-05 (see Figure 4). Most of the maximum detected concentrations of SVOCs were found at this sample location, but in October 2003, during test trenching around sample location GB-2612-05, approximately three cubic yards of soil were removed and disposed of off-site. Confirmatory soil samples collected from the sides and the bottom of the excavation continued to show high levels of PAHs; however, based on observations made during the test trenching, it is believed that small asphalt pieces in the fill material were the source of the elevated PAH concentrations in soil samples collected from this area (URS 2007). As a result, significant residual soil contamination is not believed to be an issue in this area.

During the RI, concentrations of compounds detected in soil samples were compared to the recommended cleanup levels presented in NYSDEC's *TAGM 4046* (NYSDEC 1994). Recently, NYSDEC rescinded the TAGM 4046 SCOs (NYSDEC 2010a) and replaced them with new SCOs presented in *Title 6 NYCRR Part 375* (NYSDEC 2006). For the selection of the remedy for Site SS-041, previous soil sampling results were compared to the 6 NYCRR Part 375 SCOs. It was concluded that residual soil contamination at the site is present above 6-NYCRR Part 375 Residential Use SCOs, but below 6-NYCRR Part 375 Commercial and Industrial Use SCOs. However, the exceedances were attributed to asphalt at the site, were not detected in duplicate samples, or were within one order of magnitude of the SCOs. Therefore, no further action for these soils is recommended.

6.0 CURRENT AND POTENTIAL FUTURE LAND AND RESOURCE USE

The planned future land use designation for Site SS-041 is commercial/industrial (PARC 1995). The planned reuse surrounding the site includes recreational to the east/southeast and commercial/industrial to the west/northwest (Tetra Tech 1995). The former Plattsburgh AFB runway, flight line and the Industrial Area east of the flight line are now part of the Plattsburgh International Airport.

In July 2009, the AFRPA finalized a Finding of Suitability for Early Transfer (FOSET) which allowed the conveyance via deed of 337 acres of the former Plattsburgh AFB to the Clinton County Industrial Development Agency and PARC (AFRPA 2009). Site SS-041 was included in the transfer as part of two parcels. One of the parcels that contains Building 2612 is currently owned by HOMI Properties, LLC of Plattsburgh, NY. The second parcel that includes the wetland is currently owned by PARC.

7.0 SUMMARY OF SITE RISKS

A HRA was performed for the RI Report (URS 2003) and it was revised in the RI Addendum (URS 2007) in response to regulator comments. The HRA in both reports evaluated potential human exposure to soil and groundwater contamination under future construction and residential development scenarios. As indicated in Section 5.3.2 significant and/or widespread residual soil contamination is not considered to be an issue; therefore, the conclusions reached were that soils in the vicinity of Building 2612 do not pose a significant risk to human health under either scenario. The HRA does conclude however, that groundwater contaminants do pose an unacceptable risk to the long-term resident, but not to the construction worker. Risk due to groundwater is being addressed separately as part of the FT-002/IA Groundwater OU and will not be discussed further in this ROD.

A screening level ERA also was performed for the RI Report (URS 2003) and revised in the RI Addendum (URS 2007). The ERA concluded that site contamination in sediments resulted in an unacceptable risk to the short-tailed shrew and the American woodcock.

7.1 Human Health Risk Assessment

A four-step process is utilized for assessing site-related human health risks for a reasonable maximum exposure scenario: Step 1 – *Hazard Identification* – identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration. Step 2 – *Exposure Assessment* – estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well water) by which humans are potentially exposed. Step 3 – *Toxicity Assessment* – determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). Step 4 – *Risk Characterization* – summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks.

The HRA for Site SS-041 evaluated potential human health risks associated with contaminated soil under future construction and residential development scenarios. Exposure pathways assessed include the following:

- Ingestion of contaminated soil by a construction worker or a resident;
- Dermal contact with and adsorption of contamination from soil by a construction worker or resident;
- Inhalation by a resident of contaminants volatilizing from soil migrating into indoor air; and
- Inhalation of fugitive dust from soils by a construction worker.

During the RI, contaminant concentrations in sediment samples collected from the wetland south of Building 2612 were compared to New York State Sediment Screening Criteria (NYSDEC 1999a). There were a number of compounds that exceeded the criteria for human health bioaccumulation; however, it was concluded that there were no wildlife resources in the wetland that could or would be utilized by humans as a food source (URS 2008). However, direct contact with sediments was not evaluated.

One of the compounds being remediated in the wetland south of Building 2612 is chromium. Due to new human health toxicological information on hexavalent chromium, it is anticipated that USEPA will soon revise its Integrated Risk Information System (IRIS) assessment for this compound to establish its carcinogenicity through the oral route of exposure. Although the source of the chromium contamination at Building 2612 is unknown, it is unlikely that 100 percent of the chromium in the sediment would be hexavalent considering 1) the length of time that has passed since contamination occurred (between 1963 and 1965); and, 2) the fact that wetlands are biologically active and have a high organic matter content, which promotes the transformation of hexavalent chromium to trivalent chromium, an essential nutrient.

Although human exposure to sediments through direct contact was not quantified in the HRA, based on the lines of evidence presented above, it is believed that the ecological sediment remediation goal selected for hexavalent chromium would also be protective of human exposure, particularly given the anticipated commercial/industrial future land use of Site SS-041.

The HRA used data from soil samples collected adjacent to and beneath Building 2612; data from sediment samples collected in the wetland were not used. Soil samples collected from the area adjacent to

Building 2616 with the high PAH concentrations believed to be associated with asphalt pieces in the samples also were not used in the HRA presented herein. Risks were quantified and compared to USEPA evaluation criteria. Under USEPA regulations, for known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 1×10^{-4} and 1×10^{-6} (USEPA 1990). A potential non-cancer risk is indicated if the hazard index exceeds 1 (USEPA 1991). The HRA results for potential human cancer risks and non-cancer risks are given in Tables 3 and 4, respectively.

The total exposure excess cancer risk posed by chemicals detected in soil via the four soil exposure pathways is 4×10^{-8} for a construction worker and 5×10^{-6} for a lifetime resident. The overall non-cancer hazard index for the soil pathways for both construction workers and lifetime resident is less than 1.

TABLE 3
SUMMARY OF HUMAN HEALTH CANCER RISKS

EXPOSURE PATHWAY	CANCER RISK	
	LIFETIME RESIDENT (1)	CONSTRUCTION WORKER
Soil (2)		
Ingestion of soil	$2x10^{-6}$	$2x10^{-8}$
Dermal Contact with Soil	$3x10^{-6}$	$2x10^{-8}$
Inhalation of Soil Vapors in Indoor Air	$5x10^{-8}$	---
Inhalation of Fugitive Dust	---	$2x10^{-9}$
TOTAL EXPOSURE CANCER RISK	$5x10^{-6}$	$4x10^{-8}$

NOTES:
1. The 30-year residential exposure is the sum of a six year exposure duration evaluated for young children (1 through 6 years old) and a 24-year exposure duration evaluated for older children and adults).
2. Soil consists of surface and subsurface soil combined.

7.2 Ecological Risk Assessment

As discussed previously in Section 5.3.2, contaminant concentrations in the sediment samples from the wetland south of Building 2612 were initially compared to NYSDEC's *Technical Guidance for Screening of Contaminated Sediments* (NYSDEC 1999a). This initial screening identified the PCB Aroclor 1260 and eight metals (antimony, cadmium, chromium, copper, iron, lead, mercury, and zinc) at concentrations that exceeded NYSDEC's Sediment Guidance Values; however, the guidance values for metals are for benthic organisms that are not viable in the intermittent surface water environment of this wetland. Therefore, to further evaluate the impact of these contaminants of concern, a screening-level ERA was performed for terrestrial species that could be exposed to the sediments.

TABLE 4
SUMMARY OF HUMAN HEALTH NON-CANCER RISKS

EXPOSURE PATHWAY	HAZARD INDEX		
	RESIDENT		CONSTRUCTION WORKER
	ADULT	CHILD	
Soil			
Ingestion of soil	$9x10^{-3}$	$8x10^{-2}$	$3x10^{-2}$
Dermal Contact with Soil	$9x10^{-3}$	$2x10^{-2}$	$7x10^{-3}$
Inhalation of Soil Vapors in Indoor Air	$9x10^{-6}$	$8x10^{-6}$	---
Inhalation of Fugitive Dust	---	---	$2x10^{-1}$
TOTAL EXPOSURE HAZARD INDEX	$2x10^{-2}$	$10x10^{-2}$	$3x10^{-1}$

Four indicator species were identified that could potentially be found in the wetlands: the short-tailed shrew, the American woodcock, the red-tailed hawk, and the red-winged blackbird. The short-tailed shrew was selected because it is a burrowing mammal placing it in constant contact with the sediment and it has a diet consisting primarily of sediment dwelling invertebrates. The red-wing blackbird, American woodcock, and the red-tailed hawk, a predator species, are all likely to be found in this wetland. Each species could be impacted by exposure to contaminated sediments, by ingesting contaminated terrestrial invertebrates, and, in the case of the red-tailed hawk, by ingesting the short-tailed shrew.

The ERA was based on sediment data from samples shown on Figures 6 and 7, except that data from samples SED-2612-3, -4, and –6 were not used because the area associated with these samples was excavated in October 2003 (see Figure 6).

A two-step approach was used to evaluate the potential impact to terrestrial species from exposure to wetland sediments. The first step was to compare the maximum concentrations of the contaminants of concern noted above to risk-based screening concentrations (RBSCs). The RBSC is a concentration above which the terrestrial receptor is adversely impacted by exposure to a given contaminant. Concentrations of cadmium, chromium, lead, mercury, and PCB Aroclor 1260 exceeded the RBSCs resulting in further evaluation of exposure to these compounds following USEPA's hazard quotient (HQ) approach (USEPA 1996). Antimony, copper, iron, and zinc were eliminated from further consideration during the first step.

The results of the ERA are summarized in Table 5. HQs were determined separately for each compound and a value greater than one is considered as evidence of a potential significant threat to the species by that compound.

TABLE 5

SEDIMENT EXPOSURE ECOLOGICAL RISK HAZARD QUOTIENTS

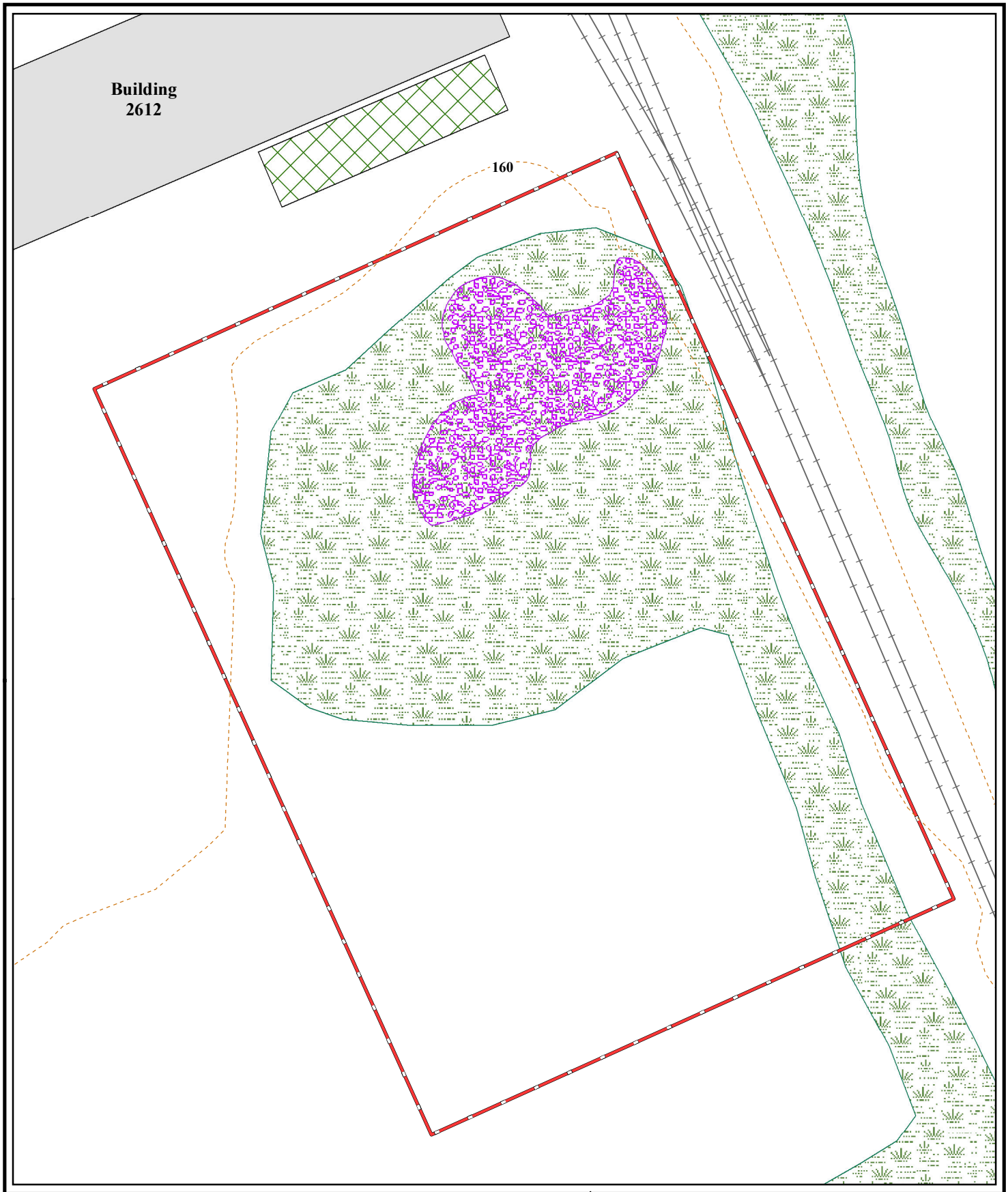
Chemical Parameter	Short-tailed Shrew	American Woodcock	Red-tailed Hawk	Red-winged Blackbird
Cadmium	1.4	0.2	0.05	0.2
Chromium	28	0.3	0.0003	0.1
Lead	96	0.1	0.005	0.02
Mercury	4.4	1.5	0.3	0.5
Aroclor 1260	0.4	0.001	0.004	0.001

The ERA results indicate that there is a potential significant risk to the short-tailed shrew and the American woodcock. For the short-tailed shrew, the risk is attributable to cadmium, chromium, lead, and mercury. Only mercury poses a risk to the American woodcock, and only slightly above an HQ of 1. The highest HQ for the short-tailed shrew was 96, due to lead at a maximum concentration of 79 mg/kg, which is less than the Plattsburgh AFB basewide background surface soil level for lead of 79.4 mg/kg (URS 1996). All other lead concentrations found in the sediment samples were less than the background level. Mercury also poses a risk to the short-tailed shrew, but it is likely that any additional mercury-contaminated sediment is co-located within the areas of elevated cadmium and chromium concentrations.

8.0 REMEDIAL ACTION OBJECTIVES

The remedial action objective for Site SS-041 is to reduce sediment contaminant concentrations to the remediation goals for cadmium and chromium that are listed in Table 6. The ecological remediation goals are contaminant-specific cleanup criteria that would eliminate a significant potential threat to ecological receptors and support residential use at the site. Figure 10 shows the area of sediment contamination requiring cleanup based on the remediation goals for ecological receptors, which were developed during the RI based on a screening-level ERA. They represent a HQ for the short-tailed shrew of 1 for cadmium and 3 for chromium (URS 2008). The remediation goals have been accepted by USEPA and NYSDEC.

The remediation goals listed in Table 6 are expected to protect against unacceptable ecological risk as well as human health (6-NYCRR Part 375 Residential Use SCO for cadmium is 2.5 mg/kg, the same as the sediment goal selected here; and the SCOs for chromium for residential use match the goals listed in Table 6). The Air Force will conduct additional sampling/ delineation in the greater wetland area near the locations identified on Figure 10 to determine if chromium or cadmium concentrations exceed these



Site

Location Map

Key Features

- Road
- Railroad
- Contour
- Proposed Revision SS041 Boundary
- Potential Area of Excavation (Approx. 3,381 sq. ft)
- Soil Staging/Dewatering Area
- Facility
- Wetland

N

0 20 40

Feet

UNITED STATES AIR FORCE
FORMER PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

FIGURE 10
Building 2612 - Site SS-041
Potential Excavation and
Sediment Delineation Boundaries

Path: Y:\GIS_Projects\PAFB\Projects\Bldg_2612_SS041\Bldg2612_SS041_L.mxd

TABLE 6
REMEDIATION GOALS

COMPOUND	MAXIMUM ALLOWABLE CONCENTRATION (mg/kg) FOR ECOLOGICAL RECEPTORS	6-NYCRR PART 375 RESIDENTIAL USE SOIL CLEAN UP OBJECTIVES
Cadmium	2.5	2.5
Chromium (total)	150	NA
Hexavalent Chromium	NA	22
Trivalent Chromium	NA	36

Notes:
NA = not applicable

levels and will remove additional sediments as needed to meet the goals. Chromium will be evaluated individually as either hexavalent or trivalent for evaluation and possible excavation.

9.0 DESCRIPTION OF THE ALTERNATIVES

Based on discussions among the Air Force, NYSDEC, and USEPA, two alternatives were evaluated for Site SS-041 as described in this section.

Alternative 1

NO ACTION

Capital Cost:	$0
Present Worth O&M:	$0
Total Present Worth:	$0
Time to Reach Sediment RGs:	Not applicable

The Superfund program requires that the "No Action" alternative be evaluated at every site to establish a baseline for comparison. Under this alternative, the Air Force would take no further action to prevent exposure to metals-contaminated sediments at Site SS-041.

Alternative 2

REMEDIATION (EXCAVATION WITH OFF-SITE DISPOSAL)

Capital Cost:	$200,000
Present Worth O&M:	$0
Total Present Worth:	$200,000
Time to Reach Sediment RGs:	6 months

In Alternative 2, contaminated sediment at concentrations greater than the ecological remediation goals for ecological receptors and 6-NYCRR Part 375 Residential SCOs for human receptors would be removed from the wetland to a depth of two feet in an area of about 3,400 square feet. The approximate area to be excavated is shown on Figure 10. The excavated sediment, about 250 cubic yards, would then be disposed of at a landfill permitted to receive this material. The portion of the wetland disturbed by the excavation will be backfilled with clean material, seeded, and then the wetland will be allowed to naturally restore itself. The estimated time to complete the remediation of this site is about 6 months.

10.0 SUMMARY OF COMPARATIVE ANALYSIS

The two alternatives for Site SS-041 were analyzed with respect to the nine criteria specified in the NCP, the regulations for implementing CERCLA response actions. A brief description of each criterion and the evaluation of alternatives based on these criteria are presented below. The NCP has categorized the evaluation criteria into three principal groups:

Threshold Criteria - The recommended alternative must meet these requirements.

- Overall protection of human health and the environment.
- Compliance with ARARs.

Primary Balancing Criteria - The most favorable and cost-effective alternative is determined using these criteria (a remedy is cost effective if its costs are proportional to its overall effectiveness).

- Long-term effectiveness and permanence.
- Reduction of toxicity, mobility, or volume.
- Short-term effectiveness.
- Implementability.
- Cost.

Modifying Criteria - The recommended alternative may be modified by public input before it is finalized and presented in the ROD.

- State Acceptance.
- Community Acceptance.

Alternative 1

NO ACTION

The No Action alternative does not meet the requirement of the first threshold criteria for the overall protection of human health and the environment because the ecological risks posed by site sediments to the short-tailed shrew and the American woodcock would remain and the exposure of these receptors to potential hazards associated with these sediments would not be mitigated. Therefore, the no action alternative is rejected.

Alternative 2

REMEDIATION (EXCAVATION WITH OFF-SITE DISPOSAL)

A comparison of Alternative 2 to the USEPA criteria is provided below and summarized in Table 7.

- **Overall Protection of Human Health and the Environment** addresses whether a remedy provides adequate protection to potential human and ecological receptors.

  Alternative 2 is protective of human health, and includes mitigating the potential risks to residential users at the site. Alternative 2 is also protective of the environment, and includes mitigating the potential risks to the short-tailed shrew and American woodcock as indicated in the ERA.

  - **Compliance with ARARs** addresses whether a remedy will meet all of the ARARs of Federal and State environmental statutes, and/or provide grounds for invoking a waiver.

TABLE 7
COMPARISON OF ALTERNATIVE 2 REMEDIATION (EXCAVATION WITH OFF-SITE DISPOSAL) TO USEPA EVALUATION CRITERIA

CRITERION	DESCRIPTION OF CRITERION	COMPARISON OF ALTERNATIVE TO CRITERION
Overall Protection of Human Health and the Environment	Addresses whether a remedy provides adequate protection to human and ecological receptors.	The preferred alternative is protective of human health and the environment. It includes measures to restore wetlands for ecological protection.
Compliance with ARARs	Addresses whether a remedy will meet all of the applicable or relevant and appropriate requirements of all state and federal environmental statutes.	Numeric remediation goals of cadmium concentration <2.5 mg/kg and chromium <22 mg/kg (most stringent criteria of the remediation goals) will be achieved within 6 months when excavation/restoration is anticipated to be complete. The remedy will meet location- and action-specific ARARS (for example, for waste handling and wetlands) as outlined in the Section 10.0 discussion of Alternative 2.
Long-Term Effectiveness and Permanence	Refers to the magnitude of residual risk and the ability of the remedy to maintain reliable protection of human health and the environment once cleanup goals have been met.	The risk to ecological receptors will be reduced to an acceptable level after remediation.
Reduction of Toxicity, Mobility, or Volume	Addresses the anticipated performance of treatment technologies employed in the remedy.	Treatment is not a component of the alternative; however, toxicity, mobility, and volume of contamination at the site are reduced with excavation and disposal off-site at a secure, engineered landfill.

TABLE 7 (continued)
COMPARISON OF ALTERNATIVE 2 REMEDIATION (EXCAVATION WITH OFF-SITE DISPOSAL) TO USEPA EVALUATION CRITERIA

CRITERION	DESCRIPTION OF CRITERION	COMPARISON OF ALTERNATIVE TO CRITERION
Implementability	Addresses aspects of implementing the remedy such as the ability to construct and operate technologies, reliability, ability to monitor effectiveness, availability of materials, permitting, and coordination with other agencies.	The preferred alternative is feasible. Design and construction of all this technology is conventional and standardized.
Cost	Refers to the capital and O&M cost of a remedy and its present worth.	The cost to implement the elements of the preferred alternative (capital cost) is $200,000 for the remedial action.
State Acceptance	Addresses the technical and administrative concerns of the State with regard to remediation.	NYSDEC provided input during the preparation of the ROD and its concurrence is provided in Appendix C.
Community Acceptance	Addresses public comments received on the Administrative Record and the Proposed Plan.	Community comments on the selected remedy are discussed in the Responsiveness Summary provided in Appendix B.

Excavation of sediments with disposal at an off-site permitted facility meets chemical-specific ARARs relevant to sediment disposal and reduces sediment concentrations of cadmium and chromium to acceptable levels.

Location-specific ARARs associated with wetlands will be satisfied by compliance with substantive requirements under the Federal Water Pollution Control Act and through consultation with the Federal or State agency officials as to any necessary mitigation prior to the start of remedial actions at the site.

Action-specific ARARs associated with excavation, transport, and disposal of contaminated sediments will be satisfied by following the applicable Federal and State laws, ordinances and regulations governing excavation, construction, dewatering, transportation and disposal ofwater/sediments/soils. On-site remedial actions will meet the substantive standards for excavation and storage prior to transport.

- **Long-Term Effectiveness and Permanence** refers to the magnitude of residual risk, and the ability of a remedy to maintain reliable protection of human health and the environment over time once cleanup goals have been met.

  Removal of the contaminated sediments and placement of clean backfill material will achieve remediation goals and allow for residential use at the site.

- **Reduction of Toxicity, Mobility, or Volume** addresses the anticipated performance of treatment technologies employed in the remedy.

  This alternative does not include treatment as a component of the remedy; however, because contaminated sediments are being excavated and disposed of at a secure and engineered landfill, the toxicity, mobility, and volume of contaminants are reduced at the site.

- **Short-Term Effectiveness** refers to the speed with which the alternative achieves protection, as well as the alternative's potential to create adverse impacts on human health or the environment during its implementation.

  This alternative achieves protection immediately with the implementation of excavation and disposal at a permitted offsite facility**.** Additionally, the seeding of the affected wetland during site restoration will enhance the habitat for the short-tailed shrew.

- **Implementability** addresses aspects of implementing the remedial alternatives, such as the ability to construct and operate technologies, reliability, ability to monitor effectiveness, availability of materials and services, permitting, and coordination with other agencies.

  This alternative includes common construction techniques and is easily implemented.

- **Cost** includes the initial capital cost as well as annual O&M costs of the alternative.

  The estimated capital cost to remove the contaminated sediments from the wetland is $200,000.

- **State acceptance** addresses technical and administrative concerns of the State with regard to remediation.

  The NYSDEC has participated in the RI process and will provide input during the preparation of the Proposed Plan and its concurrence with this alternative is expected.

- **Community acceptance** addresses public comments received on the Administrative Record and the Proposed Plan.

  The alternative was presented to the public in August 2011 with a public comment period for the SS-041 Proposed Plan from August 12, 2011 to September 12, 2011. No verbal or written comments were received during the public comment period.

11.0 PRINCIPAL THREAT WASTES

The NCP establishes an expectation that the selected remedy will include treatment that reduces the toxicity, mobility, and/or volume of the principal threat wastes to the extent practicable. The principal threat wastes for Site SS-041 are metals-contaminated sediments, primarily cadmium and chromium that are a potential threat to ecological receptors and exceed the remediation goals listed in Table 6. This alternative does not include treatment as a component of the remedy; however, because contaminated sediments are being excavated and disposed of at a secure and engineered landfill, the toxicity, mobility, and volume of contaminants are reduced at the site.

12.0 SELECTED REMEDY

The Air Force has selected Excavation with Off-Site Disposal (Alternative 2) as the remedy for Site SS-041 as it provides a permanent solution and is protective of human health and the environment.

The development and selection of this alternative is based on a consensus of opinion among the Air Force, NYSDEC, and USEPA. The selection of this alternative is also based on the evaluation provided in the Focused Feasibility Study (FS) to address contamination at Site SS-041 [FPM Group, Ltd. (FPM), 2011].

REMEDIATION (EXCAVATION WITH OFF-SITE DISPOSAL)

The selected remedy for remediating Site SS-041 includes the following elements:

- Clearing and grubbing of the area to be excavated;
- Supplemental delineation of sediment [approximately 40,000 square feet to a depth of two to three feet] to determine the presence or absence of cadmium or chromium above remediation goals (presented in Section 8.0 above);
- Removal of sediment from the wetland [approximately 3,400 square feet to an estimated depth of two to three feet (250 cubic yards)] until remediation goals are met for cadmium, trivalent chromium and/or hexavalent chromium;
- Confirmatory soil sampling;
- Disposing of the excavated sediments at a permitted landfill;
- Backfilling the excavation with clean material;
- Seeding the disturbed area.

The selected remedy will include sediment evaluation and excavation. The area that will be evaluated/ excavated is shown on Figure 10.

This remedy addresses the principal threats by removing the contaminants from the wetland and placing them in a controlled landfill, thereby removing the threat of exposure for the potentially impacted terrestrial species and potential residential site users.

While not part of the selected remedy for this ROD, the Air Force notes that additional restrictions have been placed in the deed(s) for property encompassed by Site SS-041 in association with the larger FT-002/IA Groundwater OU. These restrictions were also specified in the Finding of Suitability for Early Transfer (FOSET) for the Golf Course, Industrial, and Western Areas Properties (AFRPA 2009), which included the property encompassed by SS-041. These restrictions included: prohibition of groundwater use, restrictions on groundwater discharge, restriction of land use to non-residential uses only, SVI restrictions that require that Building 2612 on the property remain unoccupied,

and that SVI evaluations and/or installation of SVI mitigation systems be undertaken in the event of modifications to other buildings or the construction of new buildings, prior to occupancy.

13.0 STATUTORY DETERMINATIONS

The selected remedy for Site SS-041 is protective of human health and the environment and complies with Federal and State ARARs. The selected remedy does not satisfy the statutory preference for treatment as a principal element of the remedy; however, because contaminated sediments will be excavated and disposed of at a secure and engineered landfill, the toxicity, mobility, and volume of contaminants are reduced at the site.

14.0 DOCUMENTATION OF SIGNIFICANT CHANGES

There are two significant changes between the preferred alternative presented in the Proposed Plan for Site SS-041 and the selected remedy presented in this ROD as discussed below.

- Additional sediment evaluation will be performed to determine if chromium or cadmium is present in excess of remediation goals beyond the initially identified excavation area; if it is, the Air Force will excavate additional sediment to achieve the applicable goals. Trivalent and hexavalent chromium will be analyzed individually for this evaluation.

- The 6 NYCRR Part 375 Residential Use SCOs for trivalent and hexavalent chromium have also been added as remediation goals for the sediment evaluation and excavation. In addition to the ecological remediation goals, the excavation will also be conducted to remove all trivalent and hexavalent chromium (and/or cadmium) contamination to meet remediation goals (based on 6 NYCRR Part 375 Residential Use SCOs (NYSDEC 2006). Achieving the specified remediation goals for trivalent and hexavalent chromium and/or cadmium will qualify the SS041 area for residential use in the future and unlimited exposure for ecological receptors. Achieving the goals will also render unnecessary requiring any additional use restrictions or associated LUCs/ICs for this area of concern. This ROD does not address or affect the overall property limitations reflected in the deed as described briefly in Section 12 above.

15.0 REFERENCES

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GLOSSARY

Administrative Record: A file established and maintained in compliance with section 113(K) of the Comprehensive Environmental Response, Compensation, and Liability Act consisting of information upon which the lead agency bases its final decisions on the selection of remedial method(s) for a Superfund site. The Administrative Record is available to the public.

Applicable Requirements: Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and are more stringent than federal requirements may be applicable. See also Relevant and Appropriate Requirements.

Area Subject to Institutional Controls: This area is subject to the institutional controls associated with the alternative actions and the selected alternative. A deed for property encompassing all or a portion of this area will contain the applicable institutional controls.

Aquifer: A water-bearing formation or group of formations.

Bedrock: Rock that underlies soil or other unconsolidated material.

Chlorinated Hydrocarbons: Organic compounds that contain chloride such as trichloroethene (TCE) and dichloroethene (DCE). Also referred to as chlorinated solvents.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and modified in 1986 by the SARA. The act requires federal agencies to investigate and remediate abandoned or uncontrolled hazardous waste sites.

Confining Layer: A body of impermeable or distinctly less permeable material adjacent to an aquifer or water-bearing zone.

Contaminant Plume: A volume of contaminated groundwater with measurable horizontal and vertical dimensions. Plume contaminants are dissolved in and move with groundwater.

Drainage Basin: A region or area that gathers water originating as precipitation and contributes it to a particular stream channel, system of channels, lake, reservoir, or other body of water.

Electromagnetic Geophysical Survey: An exploration method based on the measurement of alternating magnetic fields associated with currents artificially or naturally maintained in the subsurface.

Environmental Impact Statement: A study conducted to provide information on potential environmental impacts that could result from a proposed action.

Feasibility Study (FS): An evaluation to identify and evaluate appropriate remedial goals and remedial alternatives for a site based upon United States Environmental Protection Agency criteria.

Groundwater: Water found beneath the earth's surface that fills pores within materials such as sand, soil, gravel, and cracks in bedrocks, and often serves as a source of drinking water if found in an adequate quantity.

Hazard Index: A quantitative measure of non-carcinogenic risk associated with exposure to chemicals. The hazard index is determined for all chemicals of concern affecting a particular organ or acting by a common mechanism. If the sum of all hazard indices is less than 1 for a particular exposure scenario, the risk of adverse health effects is considered acceptable.

Hydrogeologic: Pertaining to subsurface waters and the related geologic aspects of subsurface waters.

Infiltration: The flow of a fluid into a solid substance, such as soil or porous rock, through pores or small openings.

Inorganic Compounds: A class of naturally occurring compounds that includes metals, cyanide, nitrates, sulfates, chlorides, carbonate, bicarbonate, and other oxide complexes.

Installation Restoration Program (IRP): The United States Air Force subcomponent of the Defense Environment Restoration Program (DERP) that specifically deals with investigating and remediating sites associated with suspected releases of toxic and hazardous materials from past activities. The DERP was established to clean up hazardous waste disposal and spill sites at Department of Defense facilities nationwide.

Institutional Controls: Non-engineering measures designed to prevent or limit exposure to hazardous substances left in place at a site, or to verify the effectiveness of the chosen remedy. Institutional controls are usually, but not always, legal controls, such as easements, restrictive covenants, and zoning ordinances.

Monitoring: Ongoing collection of information about the environment that helps gauge the effectiveness of a cleanup action. Information gathering may include groundwater well sampling, surface water sampling, soil sampling, air sampling, and physical inspections.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The NCP provides the organization, structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants. The NCP is required under CERCLA and the Clean Water Act, and USEPA has been delegated the responsibility for preparing and implementing the NCP. The NCP is applicable to response actions taken pursuant to the authorities under CERCLA and the Clean Water Act.

National Priorities List: USEPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Superfund program.

Operation and Maintenance (O&M): A step in the remedial program. While a site is being remediated, it is overseen to make sure that the remedy is working as planned and that the construction remains operational.

Operable Unit (OU): A separate and distinct remedial project that is part of a large, complex hazardous waste site. Each OU has its own Record of Decision, remedial investigation, feasibility study, design and construction.

Organic Compounds: Any chemical compounds built on the carbon atom, i.e., methane, propane, phenol, etc.

Overburden: The loose soil, silt, sand and gravel, or other unconsolidated material overlying bedrock.

Pesticide: Chemical compounds used to control insects, rodents, plants, etc. Two classes of organic pesticides include chlorine (chlorinated) or organic phosphorous (organophosphorous).

Polychlorinated Biphenyl (PCB): An organic pollutant that was formerly used in electrical transformers and capacitors, their manufacture was banned in 1979. There are 210 different PCB compounds that typically have 40% to 60% chlorine by weight.

Polycyclic Aromatic Hydrocarbons (PAHs): Compounds often associated with combustion process and distillation tars.

Proposed Plan: A public document that solicits public input on a recommended remedial alternative to be used at a National Priorities List (NPL) site. The Proposed Plan is based on information and technical analysis generated during the RI/FS. The recommended remedial action could be modified or changed based on public comments and community concerns.

Record of Decision (ROD): A public document that explains the remedial alternative to be used at a National Priorities List (NPL) site. The ROD is based on information and technical analysis generated during the remedial investigation, and on consideration of the public comments and community concerns received on the Proposed Plan. The ROD includes a Responsiveness Summary of public comments.

Remedial Action: An action that stops or substantially reduces a release or threat of a release of hazardous substances that is serious but not an immediate threat to human health or the environment.

Relevant and Appropriate Requirements: These are those cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified by a state in a timely manner and are more stringent than federal requirements may be relevant and appropriate. See also Applicable Requirements.

Remedial Alternatives: Options evaluated to address the source and/or migration of contaminants to meet health-based or ecology-based remediation goals.

Remedial Investigation (RI): An investigation that determines the nature and extent and composition of contamination at a hazardous waste site. It is used to assess the types of remedial options that are developed in the feasibility study.

Risk Assessment: A systematic scientific process of determining risk estimates based on the presence of contaminants in the environment and who might be exposed to the contaminants.

Semivolatile Organic Compounds (SVOCs): Organic constituents which are generally insoluble in water and are not readily transported in groundwater.

Solvents: Organic liquids used to dissolve grease and other oil-based materials. Many solvents are toxic at high concentrations.

Source: Area at a hazardous waste site from which contamination originates.

Stratigraphic: Pertaining to the arrangement of consolidated or unconsolidated geologic materials as to geographic position and chronologic order of sequence.

Superfund: The trust fund, created by CERCLA out of special taxes, used to investigate and clean up abandoned or uncontrolled hazardous waste sites. Out of this fund USEPA either: (1) pays for site remediation when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work or (2) takes legal action to force parties responsible for site contamination to clean up the site or pay back the federal government for the cost of the remediation. Federal facilities are not eligible for Superfund monies.

Toxicity: The quality or condition of a destructive, deadly, or poisonous substance.

Vadose Zone: The volume located between the ground surface and the water table. Also known as the unsaturated zone.

Volatile Organic Compounds (VOCs): Organic constituents which tend to volatilize or to change from a liquid to a gas form when exposed to the atmosphere. Many VOCs are readily transported in groundwater.

Water Table: The surface of a body of unconfined groundwater at which the water pressure is equal to that of the atmosphere.

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APPENDIX A

TRANSCRIPT OF PUBLIC MEETING

UNITED STATES AIR FORCE

SS041 - BUILDING 2612
PROPOSED PLAN

PUBLIC HEARING

DATE: August 23, 2011

LOCATION: Clinton County Government Center
Plattsburgh, New York 12901

ORIGINAL

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SS041-Building 2612 - August 23, 2011

(The meeting commenced at 6:08 p.m.)

MR. FARNSWORTH: I'd like to begin the public meeting for the proposed plan for Site S.S.-041 Building 2612. I am Dave Farnsworth, the BRAC, Base Realignment Closure Environmental Coordinator, working for the Air Force Center for Engineering and the Environment here at Plattsburgh. I will be presiding over this meeting, the main purpose of which is to allow the public the opportunity to comment on the Air Force's actions for this site.

Assisting me in tonight's presentation is Gaby Atik, the project manager for F.P.M. We are here to provide answers to technical questions you may have about the remedial alternatives being considered by the Air Force.

Tonight's agenda will consist of a summary of data gathered at the site and a description of the preferred remedial action. After that, we will move to the most important part of this meeting, the part where you provide your comments on the remedial action.

As you can see, everything being said here

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tonight is being taken down word for word by a professional court reporter. The transcript will become part of the administrative record for the site. We would like everyone to complete the sign-in sheet at the door. At the conclusion of the presentation, we will open the floor to comments and questions. We request that all questions be held until the end of the presentation. If you have a prepared statement, you may read it out loud or turn it in without reading it. In any case, your comments will become part of the record. We have comment forms at the front table for your use for written comments. If you turn in any written comments, please write your name and address on them. If you later decide to make a comment, you may send additional comments to us at this address shown here on the screen. We will accept comments until September 12th, 2011. I will show this address line again at the end of the meeting.

The final point is that our primary purpose tonight is to listen to you. We want to hear your comments on any issues you are concerned

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about and we will try to answer any questions you may have. We want you to be satisfied that the action we take will properly and fully address the problems at the site.

Now, I'd like to turn the meeting over to Gaby Atik.

MR. ATIK: Thank you, Dave.

As David said, the agenda for this evening is to review the proposed plan process and review the background for Site S.S.-41, highlighting the previous investigations that led up to the focus feasibility study that supports the preferred alternative documented in the proposed plan. The clean-up process starts with investigations that include site inspections, review investigations, and supplementary investigations where samples are collected to define the presence and absence of contamination and then if the contamination is present dealing with the nature and extent.

The sampling data is reviewed with the United States Environmental Protection Agency and New York State Department of Environmental

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Conservation. The sampling results are compared to applicable or relevant and appropriate requirements or guidance values and then if warranted a site specific risk assessment is conducted. Depending on the sampling results and the evaluations, the site is then either recommended for no further action or for remedial action. That may include excavation and offsite disposal.

A proposed plan is developed by the Air Force with input by the U.S.E.P.A. and New York State D.E.C. The draft proposed plan is issued to the public for review and comment and then all public comments are addressed in a responsiveness summary. The responsiveness summary is prepared and incorporated in the record of decision. The record of decision documents the remedial action that is proposed and that will be implemented and the record of decision will be executed by the Director of the Air Force Real Property Agency and the U.S. E.P.A. Regional Administrator with New York State D.E.C. concurrence.

The next set of slides reviews the site background S.S.-41. The site is located at

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Building 2612, which is in the central eastern portion of the former Air Force base. S.S.-41 consists of Building 2612 and the adjacent areas, including the wetlands to the south and the area between buildings 2612 and 2616. The site does not include **(5.29) intrusion and ground water that's addressed under the F.T. 002/Industrial Area Ground Water Operable Unit.

The next slide shows the location of Building 2612 and some of the features. The building was used in the early 1960s in support of the Atlas Intercontinental Ballistic Missile program. Between 1965 to 1970, Building 2612 was used as a cold storage area until the base was closed in 1995. Storage in the building included petroleum products, miscellaneous solvents, and electrical transformers.

The next slide shows an aerial of the site and some of the features, including the wetland to the south of the building. The building included floor drains and sink drains which discharged into the storm sewer and ultimately discharged to the wetland to the south. Cadmium and chromium

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contamination remains at the site in wetland sediments. The metals contamination appear to have originated at the storm sewer discharge point in the wetland and the contamination that followed depression contours and settled in low lying wetland areas.

The next set of slides will review the previous investigations and activities and highlight some of the findings. In 1994, an environmental baseline survey was conducted base wide. During that survey the site was identified as a category seven, which indicates that there may have been a release of chemicals at the site, but additional investigation was required. In 1996, a supplemental evaluation was initiated and during that evaluation site inspections and reconnaissance identified floor and sink drains that discharge into the storm sewer system and ultimately discharge to the wetlands. Also an ejection pit which collected wastewater from the building was noted.

In 1998, an environmental sampling program was initiated. Ground water, drain sediment, waste

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water injection pit and concrete ship samples were collected. The samples were analyzed for V.O.C.s, S.V.O.C.s, P.C.B.s and metals. And these analytes were detected in the floor drain and ejection pit.

In 1999, the drainage system was cleaned. That phase included cleaning of floor drains and other openings in the building floor prior to capping all of the openings with cement. Also, two hundred gallons of water and fifty gallons of sediment were recovered from the ejection pit.

Then in 2001, a remedial investigation was initiated. The remedial investigation was required to delineate the nature and extent of contamination and ground water, soil, and sediment samples were collected and a risk assessment was performed. Sampling results show V.O.C., S.V.O.C., P.C.B.s and metal detections exceeding New York State standards, criteria, and guidance values. However, a human health risk assessment indicated that there is not a potential significant risk from soils at the site. The ecological risk assessment, on the other hand, indicated that there's a potential significant risk to the short tailed shrew and the

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American woodcock.

In 2003, there were some test trenching conducted on the site. During that phase, approximately fourteen cubic yards of sediment were removed from the wetland and soil and sediment sampling was conducted. The sampling indicated that there was still cadmium and chromium concentrations in sediments that represented an unacceptable ecological risk to terrestrial receptors, including the short tailed shrew and American woodcock.

The next slide shows the cadmium concentrations following the trench testing that was conducted in 2003. As you can see, there were concentrations of cadmium ranging from zero point one two to three point six milligram per kilogram with some of the concentrations associated with higher levels shown in red. Similarly, chromium concentrations were present at the site at elevated levels that range from six point two to one thousand two hundred and ninety milligrams per kilogram. In 2004, there was a sampling program that evaluated the ejection pit. During that

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phase, soil sampling was conducted using a geo probe and all samples were analyzed for V.O.C.s, S.V.O.C.s, P.C.B.s and metals. The results of the sampling confirmed that all concentrations were below New York State guidelines and standards.

In summary, the prior investigations and activities have documented that there is residual contamination at the site, primarily associated with cadmium and chromium. A focus feasibility study was recently completed to identify the preferred alternative to address the residual contamination. Given the nature of the contamination, the feasibility study focused on two remedial alternatives, no further action and excavation with offsite disposal. The feasibility study identified that the excavation alternative with offsite disposal as the preferred alternative and that that alternative met the requirements of overall protection of human health and the environment.

The preferred alternative which is documented in the proposed plan includes removal of sediment from the wetland. Approximately

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thirty-four hundred square feet in area would be excavated to a depth of two feet. And the alternative is meant to reduce sediment contamination to levels of cadmium less than two point five milligrams per kilogram and levels of chromium that are less than a hundred and fifty milligrams per kilogram, which are, respectively, the remediation goals for cadmium and chromium for the site.

So this summarizes what the proposed plan documents in much more detail. This final slide highlights the schedule for the proposed plan and the date for which public comments would be received by. As Mr. Farnsworth had mentioned, the end of the comments period is September 12th, 2011 and comments can be send in writing -- sent in writing to Mr. Farnsworth's address. And with that, I'll turn it back to Mr. Farnsworth.

MR. FARNSWORTH: Thank you, Gaby.

At this point I'd like to open up the meeting for comments or questions. Since everything being said here tonight is being taken down, please state your name for the record before

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you make your comment.

Well, I think considering the attendance, we'll press on.

If you should later decide to make additional comments on the proposed action, please mail them to this address shown on the screen by September 12th, 2011. Also, I would like to add, the proposed plan is available for review at the Air Force Center for Engineering and the Environment office here in Plattsburgh. Thank you.

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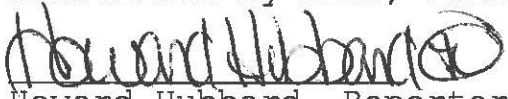
STATE OF NEW YORK

I, Howard Hubbard, do hereby certify that the foregoing was reported by me, in the cause, at the time and place, as stated in the caption hereto, at Page 1 hereof; that the foregoing typewritten transcription, is a true record of all proceedings had at the hearing.

IN WITNESS WHEREOF, I have hereunto subscribed my name, this the 6th day of September, 2011.



Howard Hubbard, Reporter

APPENDIX B

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY:

On August 12, 2011, AFRPA, following consultation with and concurrence of EPA and NYSDEC, released for public comment the proposed plan for Site SS-041 located at the former Plattsburgh AFB. The release of the proposed plan initiated the public comment period, which concluded on September 12, 2011.

During the public comment period, a public meeting was held on August 23, 2011 at the Clinton County Government Building, First Floor Meeting Room, 137 Margaret Street, Plattsburgh, New York. The selected remedy for Site SS-041 was presented at the public meeting and a court reporter recorded the proceedings of the meeting. Copies of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposed plan for Site SS-041.

No verbal or written comments were received at the public meeting or during the public comment period.

APPENDIX C

NYSDEC CONCURRENCE LETTER

New York State Department of Environmental Conservation
Division of Environmental Remediation
Office of the Director, 12th Floor
625 Broadway, Albany, New York 12233-7011
Phone: (518) 402-9706 • **Fax:** (518) 402-9020
Website: www.dec.ny.gov

Joe Martens
Commissioner

Sent Via Email Only

September 11, 2012

Mr. David Farnsworth (david.farnsworth@us.af.mil)
AFCEE/EXE - Plattsburgh
8 Colorado Street, Suite 121
Plattsburgh, NY 12903

Re: Plattsburgh AFB, 510003
Final Record of Decision
Site SS-041, Building 2612

Dear Mr. Farnsworth:

The New York State Department of Environmental Conservation (DEC) and the New York State Department of Health (NYSDOH) have reviewed the Final Record of Decision (ROD) for Plattsburgh AFB, Site No. 510003, Site SS-041, Building 2612. DEC supported the selected alternative presented in the PRAP, as indicated in our July 01, 2011 letter to the Air Force. The ROD differs from the PRAP in that the Remedial Action Objectives presented in the ROD are more protective of human health and the environment than those presented in the PRAP. The PRAP proposed RAOs to achieve a cleanup goal commensurate with DEC soil clean up goals for commercial use. The RAOs in the ROD commit to achieve cleanup goals commensurate with DEC soil clean up goals for residential use.

DEC concurs with the selected remedy, excavation and off-site disposal, in the Final ROD. Please feel free to contact Mr. Daniel Eaton at (518) 402-9563 if you have any questions.

Sincerely,

Robert W. Schick, P.E.
Director
Division of Environmental Remediation

ec: W. Mugdan, USEPA
A. Carpenter, USEPA
J. Malleck, USEPA
R. Morse, USEPA
K. Anders, NYSDOH
D. Ripstein, NYSDOH
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B. Conlon, DEC
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